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PREFACE.

I HAVE often thought of publishing a few observations on the Etiology of Diseases of the Skin, since I find the books do not sufficiently reflect our present knowledge of the conditions of Dermatology.

Some questions were proposed to me by my own pupils, who, interested in the study of Dermatology, were desirous of learning from me many things concerning the causes of different diseases.

My patients, also, have questioned me in the persistent way known to every physician: "How can I get rid of this eruption?" "I never had any thing on my skin;" "Can I drink beer, or coffee?" "Can I eat butter?" etc.

These questions from different parties, all pointing in the same direction, gave me the idea of publishing a few remarks on the Hygiene of the Skin, and to develop from the researches of science, and from my clinical experience, the doctrine of all causes capable of producing skin eruptions.

I have taken a special interest in removing from the minds of the laity some prejudices in reference to skin diseases, which are very often the cause of an eruption, or of making an existing ailment worse.

Under the guide of science I have endeavored to explain every application to the skin, so that it may result in

clearing and maintaining the complexion, and preserving the skin with its appendages, the hair and nails.

A good complexion is intimately connected with a healthy system, so that a diseased body can not hope to have the fresh and fair complexion which is so desirable for the beauty and harmony of the physiognomy.

A careful study of the principal factors of these diseases can alone put us in position to prevent them.

THE AUTHOR.

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THE HYGIENE OF THE SKIN.

CHAPTER I.

THE SKIN A COMPLEX SYSTEM OF ORGANS.

THE large and continuous membrane, called the *cutis* or skin, which covers and protects the internal parts of the animal organism, is one of the most interesting organs of the body. The first changes in the general health, the mental impressions, the feelings of satisfaction or of shame, of love or anger, are manifested in the face by a difference of color, which is produced either by a contraction or a dilatation of the cutaneous blood-vessels. Many internal diseases can be promptly recognized by the eye of the skillful physician from the color and alterations in the skin.

The skin is a complex system of many organs, performing the most interesting functions—absorption, transpiration, perspiration, and the delicate sense of touch. With its freshness of color, its smoothness of surface, its appendages, the hair and the nails, it produces the regular appearance of the body and of the physiognomy, makes the ideal, the æsthetic character; in a word, produces beauty.

It therefore merits the most diligent attention and the best care. Its functions of absorption and perspiration must be looked to in order to prevent disease and maintain the organism in health. As an organ of touch, it must be carefully examined as to its sensitiveness, whether hyperæsthetic or anæsthetic, or whether there be disordered sensations, as in pruritus and many nervous diseases. As an organ

of beauty, it must be guarded against eruptions, discolorations, loss of hair, etc., all of which would change the expression and destroy the exterior aspect of the body.

CHAPTER II

ANATOMY OF THE SKIN.

THE anatomy of the skin is given in every book upon the subject; but in order to make the following pages clearer, I wish very briefly to touch upon its most interesting features.

The skin, as every body knows, consists of three layers, differing in their anatomical and vital conditions. These layers are called, according to their position, the *epidermis*, the *derma*, and the *subcutaneous tissue*.

EPIDERMIS.

From any part of the surface of the skin a piece of cuticle may be removed without producing pain or bleeding. This appears as a fine, dry, slightly transparent membrane, and has in its structure neither blood-vessels nor nerves. Under this dry membrane there exists another thin layer, which has a semi-fluid, gelatinous appearance, similar to plasma. In this plasma there are solid nuclei, which, by successive changes, are transposed into nucleated cells of the first membrane. This difference in appearance gave rise to the division of the epidermis into two layers, the first being called *stratum corneum*, or the horny layer, and the second *stratum mucosum*, or the mucous layer.

The cells composing the mucous layer gradually become more superficial, arrange themselves close together, become flattened, lose their fluid contents, and finally are changed into the flat scales forming the horny layer. These flat

scales are being continuously lost by washing and rubbing, but are continually replaced by new cells from below in the manner described. Thus the process of waste and repair is carried on in this as in all the other organs.



SECTION OF NORMAL SKIN.

A. Horny layer of the epidermis. B. Mucous layer of the epidermis. C. Corium with papillæ. D. Tactile corpuscle. E. Sebaceous gland. F. Hair. G. Erector of the hair muscle. H. Sweat gland. I. Pacinian corpuscle. J. Subcutaneous connective tissue.

The *corpus mucosum* forms a network which incloses within its meshes the papillæ, and is called the *rete mucosum*. It is also called the *corpus Malpighii*, because Malpighi first described it. Under the microscope the Malpighian layer appears like a dark line next to the corium. This appearance is produced from a slight staining of the substance

of the cells, and a more intense staining of their nuclei by fine granules of pigment which are present. This is the coloring matter of the skin, and upon its presence and its intensity are dependent the various colors of the different races of mankind. In the negro there is an abundance of pigment, in the Caucasian it is not so marked. A curious fact which may be mentioned in this connection is, that the lice which infest the negro derive their nourishment from these pigmented cells, and have as a consequence a dark color like their possessors.

As the cells of the *rete mucosum* become changed into those of the horny layer, they lose their pigment to such an extent that in the negro the cuticle is scarcely brown.

The epidermis is spread so accurately over the inequalities of the corium, that the aggregations of the underlying papillæ are shown only in concentric lines. It varies in thickness in the different portions of the body, being thickest in those places where rubbing or pressure is the most frequent. Like the other horny productions, the epidermis is a poor conductor of heat and electricity. It limits the absorption of the cutis, and prevents the too rapid evaporation of the fluids of the underlying tissues. This last mentioned fact can easily be proved by examining the skin of a dead body upon which a blister had been applied before death. In the part covered by the blister, the surface which had been deprived of its epidermis appears dry and hard, like parchment.

DERMA.

The derma, corium, or true skin is the most important part of the integument. It is made up of connective tissue fibres, which are woven together as the fibres of a straw mat, thus forming fascicles with diagonal meshes. (Henle, Koelliker, Rollet, Biesiadecki.) They arise from the subcutaneous tissue and proceed in all directions, some remaining in the lower layer of the corium, others proceeding to the papillary

layer. They decussate among themselves and produce a plexiform appearance.

The cells of the connective tissue formed for some time the point of dispute between the best microscopists. Ranvier and Waldeyer maintained that these cells were only endothelial cells, which cover the meshes of the connective tissue, considering those meshes as loculi containing lymph. The same idea was strictly maintained by Axel Key and Retzius, who tried to support their opinions by anatomical specimens. But their opinions were refuted. Flemming found the cells of the connective tissue and compared them to the cells of the Omentum Majus. He denied, however, that they were endothelial cells as affirmed by Axel Key, and maintained that they were little corpuscles without elongations. Although he saw what we now know to be elongations of the cells, he denied that they were such, and claimed that they were appendages of fundamental cement substance.

According to my own researches,* the corpuscles of the connective tissue are cells having elongations and freely anastomosing with each other.

In small animals recently born these cells are spindle-shaped, with granulated nuclei, and present, as Boll described, a line which is the angle of one elongation seen through the body of the same cell. The elongations, which proceed from the body of the cell, embrace the fascicles of the fibers and send secondary elongations into them. According to many specimens, which I have prepared, the cells have a direction parallel to the direction of the fascicles and lie upon them. In the skin of old animals or of old persons the fascicles of the fibres present a net of elastic tissue, the fibres of which proceed, without doubt, from the connective tissue corpuscles and their elongations.

Smooth muscular fibres enter into the texture of the

* Untersuchungen über den Bau, die Entwicklung, und Vereiterung der Cutis. Med. Jahrbücher, 1879, I.

corium, forming in places—as, for instance, in the scrotum and the area of the nipple—a muscular stratum or layer. In other places, as in those parts of skin which are provided with hair, they appear as small muscular bands. These bands, by contracting, produce the phenomenon known as *cutis anserina*, goose-skin—which appears whenever cold strikes the suddenly exposed surface, when the mind is peculiarly affected, as in fear, or when the magneto-electric machine is applied to the skin. A great many striated muscles, having their origin in the bones and their insertion in the skin, are found in the face; they are the muscles of facial expression and of the physiognomy.

The corium is bound together and attached to the underlying tissues by the fascicles of fibres. According to the length and resistance of these fibres, the corium is more or less elastic, and can be raised or folded. In some places, as in the palm of the hand and in the sole of the foot, the fascicles have a tendinous character, and prevent the lifting up of the skin. In many places they have the appearance of bands, and thus give rise to the lines and furrows to be found about the joints, the face, etc. In early life these lines are only temporary, and being produced by the contraction of the underlying muscles, as in the forehead and upon the face, they disappear when these muscles are at rest; but later in life, because of the continual action of these muscles, these lines and furrows are changed into permanent wrinkles. Many other small superficial furrows or linear markings traverse the whole surface in various directions. They are to be found upon all parts of the skin, intersecting each other like the lines of a mosaic, and thus forming small polygonal spaces. These lines or furrows are the depressions between the rows of papillæ lying underneath the epidermis. They influence very much the disposition of a cutaneous eruption, and never totally disappear, except when either swelling or œdema occurs.

The corium has different degrees of thickness in the

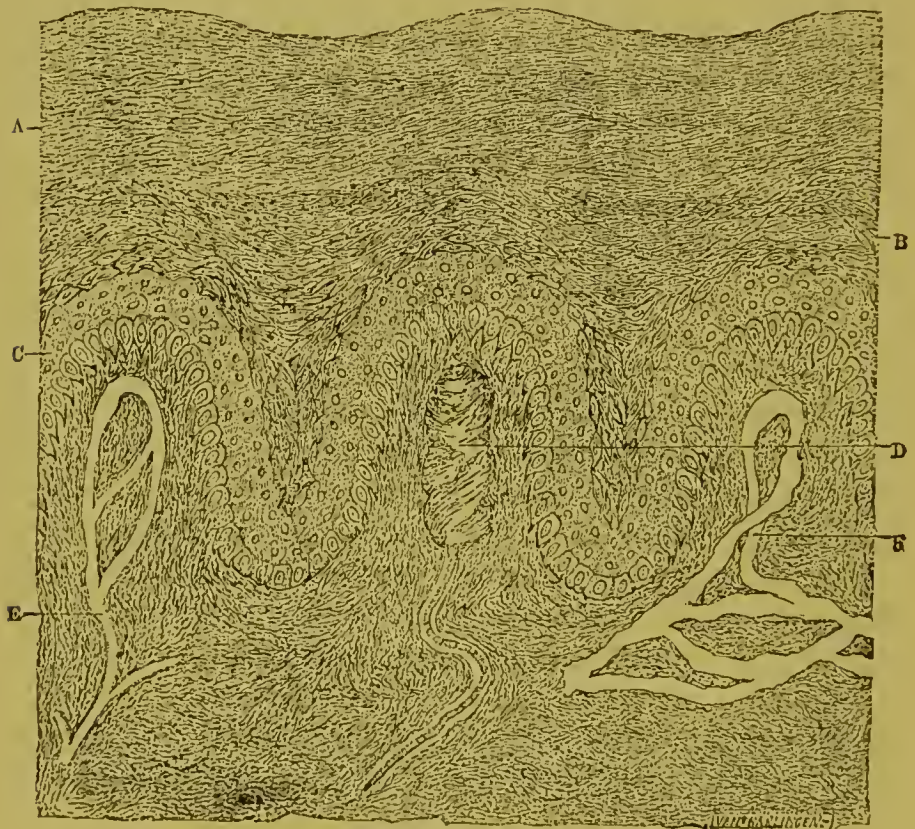
various regions of the body. Thus it is thicker in the scalp, the trunk, and the extremities on the extensor surface, than in the face and upon the flexor surface of the joints where the veins are so perceptible.

The skin of a woman is much thinner and softer than that of a man. In the leather factory of Mendon (France) at the time of the French Revolution, the skins of those who were executed were tanned, and it was found that the skin of a man produced a much better quality of leather than the hide of the wild goat, but the skin of a woman was hardly fit for suspenders. (Montgaillard IV, page 290.)

Owing to the elasticity of the skin, and to the fact that the fascicles of the fibers cross each other in all directions, it happens that when the skin is cut the wound does not maintain the form of the instrument which produced the wound, and it is necessary to sew the wound so as to bring the edges into contact. On account of this distension the corium is substituted with a cicatricial tissue, the epidermis is formed again, and remains a kind of cicatricial furrow. The same occurs in the skin of the abdomen after pregnancy, owing to the distension of the abdominal walls; the meshes of connective tissue fibers in the skin are stretched, the epidermis is separated in places, and the spaces become filled with cicatricial tissue. The skin is never regenerated in such a cicatrix, and no trace of papillæ, sweat, or sebaceous glands are to be found.

The superior stratum of the corium contains innumerable small elevations known as papillæ, and hence it is known as the papillary layer of the skin. Numerous blood-vessels and nerves enter the meshes of the connective tissue, proceed to the surface of the skin, form meshes, enter into the tissue of the papillæ, and thus produce the *papillæ tactus*. These papillæ tactus are not confined to the skin, but are found in the mucous membrane wherever the sense of touch is developed, as in the tongue, the conjunctiva, the labia minora, the meatus of the vagina, and the neck of the

womb. These papillæ are not equally distributed in all parts, but are larger and closer together in the lips, the glans penis, and the labia minora. On the tips of the fingers they are arranged in concentric lines, which form more or less perfect ellipses. Each of these lines contains a



EPIDERMIS AND PAPILLARY LAYER.

- A. Horny layer of the epidermis. B. Mucous layer of the epidermis. C. Prickle cells of the mucous layer. D. Papilla of the corium containing a tactile corpuscle. E. Papilla containing a blood-vessel. F. Papilla with a lymphatic-vessel.

double row of the papillæ tactus, and in the depressions between them are the sweat glands with their small opening.

The papillæ tactus contain the touch corpuscles, or the corpuscles of Meissner and Wagner. They are elliptical, seldom round, and contain the fibres of the last ramifications of the sensitive nerve ending.

They are 0.02''' long and from 0.008''' to 0.01''' wide,

with a transversally striated or corded exterior. Meissner thinks that the primitive fibres of the nerve form a kind of spiral about a solid nucleus of connective tissue, and his view is supported by the fact that in cases of paralysis of the sensitive nerves, this striated appearance is no more perceptible. These papillæ are found in all parts of the body, but are especially numerous upon the last phalanges of the fingers.

Besides the corpuscles of Meissner, other corpuscles are found. These are the Pacinian corpuscles; so called from their discoverer, Pacini. They consist of small, white elliptical bodies attached to the ends of the final ramifications of the sensitive nerves, and vary in size from one and one-half to two millimeters. They are most numerous on the fingers at the terminations of the ulnar and median nerves; in the endings of the plantar nerves; in the nerves of the glans penis in man, and of the nipple in woman. Under the microscope they are seen to consist of connective capsules, which are made up of nucleated connective tissue, and are separated from each other by a kind of serous fluid. In the center of this capsular mass there is a bulb, which is the nerve ending; and there is also a large blood-vessel, which enters the corpuscle with the nerve, ramifies in the capsule, and returns as a vein. In the larger papillæ there may be two arteries. While the papillæ are made up of fascicles of connective tissue similar to that found generally in the derma, there is in the papillæ a more longitudinal direction to the fibres of these fascicles, and at the same time they are intersected by small elastic fibres.

According to Teichmann, the lymph vessels send a prolongation in the papillæ, and end in them as a cul de sac. From the researches of Biesiadecki and Langerhans, we know that there are non-medullated nerve-fibres in the skin; they form in the corium a plexus, consisting of a few large and a great many fine, smooth nerve-fibres. Fibres run from this plexus to the Malpighian layer of the epidermis,

and to the papillæ, in which latter they end in bulbous extremities.*

The so-called vascular papillæ also exist in the skin; they consist chiefly of loops of blood-vessels without the corpuscles of touch.

GLANDS OF THE SKIN.

The skin has two kinds of glands—sebaceous and sweat glands.

The sebaceous glands are to be found in the corium all over the body, except in the palm of the hand, the sole of the foot, the dorsal surface of the second and third phalanges of the fingers, and the skin upon the apex of the penis. They belong to the acinous glands, and consist of gland structure with a short excretory duct, which opens free upon the epidermis or into the hair follicles. They are pear-shaped in the shoulders, and round in the nose, lips, etc. The cul de sac of a sebaceous gland is covered with round-celled epithelium, from which the sebum or *smegma cutaneum* is produced. This sebum is an oily substance, which keeps the hair and skin soft, and protects them from the sweat.

The sweat glands, *glandulæ sudoriferæ*, are long convoluted tubes, situated deep in the corium and subcutaneous tissue, and having long excretory ducts. With the aid of a magnifying glass the opening of these ducts upon the epidermis can be seen in the small furrows upon the palm of the hand. These glands vary in number according to the region of the body, there being 2,800 to the square inch in the palm, and 400 to the square inch in the skin of the back. They consist of a tube twisted upon itself into the shape of a knot, and a spiral-shaped excretory duct which opens upon the surface of the skin. The thicker the epidermis, the more marked is the spiral course of the duct. No sweat glands

* Stricker: Human and Comparative Histology, Vol. II, page 235. Virchow: Archiv., Bd. XLV, 2d and 3d Heft.

are to be found in the auricle, the external auditory meatus, or the glans penis. Their structure is very simple—a thin layer of connective tissue, covered with pavement epithelium. The functions of these glands is to segregate the sweat, which appears upon the surface either in the form of drops, or of a general moisture. It appears in drops only as the result of heat, hard labor, violent emotion, or disease.

The sweat is a clear watery fluid, of an acid reaction, turning blue color in red, and contains as its chemical constituents chloride of sodium, sulphates, uric acid (a trace), lactic acid, and the salts of lactic acid and water. Its chemical composition varies greatly, and depends upon the individual, and upon his physiological and pathological condition. The watery portions of the perspiration are readily evaporated, and the solid constituents are deposited upon the surface of the skin. The sweat glands of the axilla and of the foot have the peculiarities of an especially strong acid reaction, of a marked odor, and of staining the clothes.

SUBCUTANEOUS CONNECTIVE TISSUE.

The *Textus cellulosus subcutaneus* is the lowest layer of the skin, and serves to bind it to the muscles or fasciæ beneath. It is loose in structure, and consists of fascicles of connective tissue, elastic tissue, and an abundance of fat. Throughout its meshes are to be found the ramifications of the nerves and of the blood-vessels as they come from the tissues beneath. This tissue gives rise to the elasticity of the skin. The fibrous elements are so interwoven as to produce large meshes or lacunæ, which intercommunicate. Amongst these meshes we find the fat, which, in some cases of good nutrition, is from one to two inches in thickness, thus producing a distinct layer called the *panniculus adiposus*. This quantity of fat varies in different individuals. It is increased by abundant fatty food, sedentary habits, and freedom from care.

No fat is to be found in the subcutaneous tissue of the

penis, scrotum, nose, eyelids, or ear ; whereas it is found to be well developed in the palm of the hand, in the fingers, in the sole of the foot, in the gluteal region, in the breast of woman, and in the face. Inasmuch as the roundness of the figure depends upon the development of the panniculus adiposus, muscular movements of the body and the face are much more marked in slender individuals. In fat persons the skin is smooth and brilliant, while in the emaciated the skin is rough and usually dark. It is an interesting fact that the fat which serves to diminish the intensity of external impressions is best developed in those parts which are most subject to injuries, as the palm of the hand, the sole of the foot, and the gluteal regions.

The fat being a poor conductor of heat, diminishes the loss of the radiating heat through the skin. In animals the fat is more abundant in Winter, which shows that it is of great importance in preserving the internal temperature of the body.

NAILS.

The dorsal aspect of the end of the last phalanges of the fingers and toes is protected by hard, horny plates, called nails. They are of a quadrangular, convexo-concave form, and lie imbedded in the skin with their concave surface in contact with the papillary layer. One border, the anterior, is free. These nails preserve the bulbous form of the finger tip, and by offering a point of counter-pressure, enable us the more readily to appreciate by the sense of touch the form and qualities of bodies. The papillary layer of the skin, which forms the bed or matrix of the nail, has its surface covered with papillæ arranged in lines running parallel with the length of the nail. These papillæ number from sixty to ninety in each line. The inferior border, which is the youngest part of the nail, is sunken into the skin for a distance of two millimeters, and is known as the *radix unguis*. Occasionally a white segment called the *lunula* is found at the root of delicate nails.

The nails contain the same cells as the epidermis, but in a hardened state; the lowest cells, however, that is those in contact with the corium, are soft, and contain a fluid plasma like those of the *rete Malpighii*, while the superficial cells are of a hard and horny structure. By boiling these superficial cells in a solution of caustic potash their nuclei may be again seen. The surface of the nail is smooth, with longitudinal striæ running parallel from the root to the free edge.

The abundance of the nerve supply to the bed of the nail explains the pain produced by extraction of the nail in surgical cases. That there is a rich blood supply is shown by the facts that the nails turn red when the hand is warm, turn pale when fainting occurs, and blue when there is venousstasis. It is remarkable that in case of fracture of the bones of an extremity the nails stop growing upon the injured side.

The nail has the same physical properties of the epidermis. Exposed to the heat, it becomes dry and cracks; in the water for a long time, it grows soft. Its function is only a mechanical one, as to increase the faculty of touch by its counter-pressure.

HAIR.

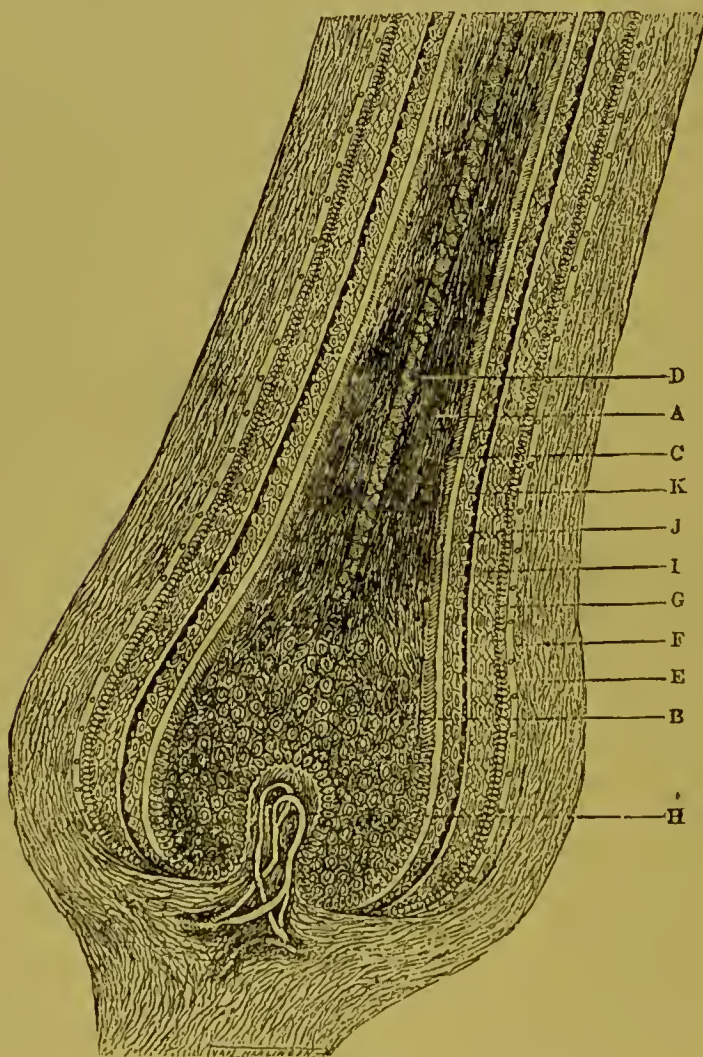
Hairs, *pili*, are horny, roundish, thread-like productions, which grow from the skin; their production or growth being the result entirely of cellular metamorphosis.

The hair varies greatly in different parts of the body. Those upon the head are long; short and thick hair we find in the eyebrows, and fine and soft hair upon the face, trunk, and other regions of the body, called *lanugo*.

Taking for purposes of demonstration the hair of the head, we find two distinct parts—the *radix* or root, which is imbedded in the hair follicle; and the *scapus* or shaft, which lies free upon the surface of the skin.

The root imbedded in its follicle is thicker than the shaft, and ends in a bulb-shaped extremity called the hair-bulb. The bulk of the hair, as is the case with the nails, consists

essentially of the same substance as the epidermis. It is composed of elongated, spindle-shaped, flat filaments or bundles, longitudinally striped, and containing granules of pigment, which give it a punctate appearance. These filaments consist of long, flat cells, cohering very closely.



THE HAIR AND THE HAIR FOLLICLE.

- A. Shaft of the hair. B. The root of the hair. C. Cuticle of the hair. D. Medullary substance of the hair. E. External layer of the hair follicle. F. Middle layer of the hair follicle. G. Internal layer of the hair follicle. H. Papilla of the hair. I. External root sheath. J. Outer layer of the internal root sheath. K. Internal layer of the internal root sheath.

The root or bulb of the hair surrounds the hair papillæ at the base of the follicle; its structure is loose and spongy, and is made up of nucleated cells, like those in the deep layers of the rete Malpighii. Amongst these cells are to be found small granules of pigment, which produces the difference of color in the hair.

The cuticle of the hair invests the cortical substance as a delicate membrane, and serves to bind the fascicles firmly together. It is adherent to the hair, and gives it a reticulated, scaly appearance. If the hair be treated with an alkali, the detached cells will be found flat, transparent, and without nuclei.

The medullary substance appears as a broad, colored line, running longitudinally through the center of the hair. It consists of rectangular or oblong cells, containing nuclei, fatty granules, and some air. It is absent in the lanugo.

The hair follicle, *folliculus pili*, is a dipping downwards of the epidermis through the corium to the subcutaneous connective tissue, and is furnished throughout its extent with organic muscular fibres. The excretory ducts of the sebaceous glands, which oil the hair, giving it its lustre and smoothness open into the follicle. A small papilla made up of nerves and capillary blood-vessels lies at the bottom of the hair follicle. The hair bulb is attached to this papilla.

The hair lies obliquely in the skin, but this obliquity varies in the different regions of the body. The hair has the same physical properties as the epidermis; it is resistant, elastic, and retains for some time the form into which it may be folded or twisted.

Curled hair is rarely entirely cylindrical, but is flat and has a divided apex. Dry hair is electric, and when rubbed the small electric sparks may be seen—a phenomenon commonly observed in rubbing the fur of a cat.

Hair is intensely hygroscopic, a fact which was formerly taken advantage of in measuring the humidity of the atmosphere. The oil or fat which permeates the hair counteracts

this hygroscopic quality; this quality may be brought out by boiling the hair in an alkaline solution, or by washing it in ether. Hair never undergoes putrefaction, and may last for thousands of years, as is seen in the Egyptian mummies; it dissolves, however, in the Papinian digester. When the hair is burned by fire it produces a horny odor, and leaves an ash containing iron, oxide of manganese, salts of lime, and silica. According to the analysis of Hatchett, continued boiling of the hair separates from it some little gelatine, which has all the characteristics of coagulated albumen.

According to Vauquelin, there are present in hair an oily substance and a coloring matter, the latter giving to the hair its peculiar hue. The fixed substances are iron, manganese, sulphur, phosphate and carbonate of lime. Vauquelin also found that the coloring matter is destroyed by acids, and advances the idea that, as a consequence of this fact, the sudden turning white of the hair is caused by the production of an acid in the system.

The oxide of iron is present in considerable quantities in black hair, but in white there is scarcely a trace. Sulphur is to be found in greater quantities in red or light hair than in black.

Although the hair appears so smooth to the touch, we know that it has an imbricated texture, with the projections all pointing in one direction from root to tip, as is found in the feather. This fact can be demonstrated by drawing a hair between the fingers. If drawn from root to tip it is smooth, but if the direction be reversed the roughness of surface will be noticed. The process of felting depends upon this roughness of surface, for in the process the hairs are entangled, and this imbrication keeps them so.

The color of the hair depends upon the presence of a pigment in the cells and their nuclei, and varies through all the shades from white to black. The color of the hair is in consonance with that of the skin, so that when the skin is colorless

the hair and eyes are also without color, and produce that condition of complexion known as albinism.

In the complexion of the fairest Europeans there is always a mixture of red and brown, but in the albinos the skin is of a dead pearly whiteness, and the hair and the irides are also white. From the accounts of travelers it may be supposed that albinism is more frequent in certain parts of Africa and India than in other portions of the earth, but the condition is not very uncommon in all the temperate climates of Europe. It appears alike in both sexes, and has a tendency to become hereditary. Its origin is unknown.

The darkest hair is found amongst the Africans, and corresponds to their skin and their eyes. This darkness of complexion has been ascribed to the influence of the sun upon the surface of the body; but this is probably not the case, for the following reasons, viz.: The blackest complexions are not found in the hottest regions; there are some considerable tribes nearly under the equator, whose skin is whiter than that of many Europeans; the brown color produced by the sun is not transmitted from parent to offspring; whereas the negro children are as black as their parents, and no length of residence in a milder climate has any effect whatever upon their complexion, nor that of successive generations.

The shades of color in the hair vary greatly according to the latitude, climate, and temperature. The color of the hair, as well as that of the skin, forms one of the characteristic attributes of the different human races. In our climate the principal colors of the hair can be reduced to two types, black and light, to which are referred an infinitude of other shades. To black belong the brown, the auburn, etc.; to the light belong the fiery red and all intermediate shades down to the light chestnut.

The color of the hair was formerly considered as a mark of the temperament. Thus black hair showed a bilious

temperament, and was emblematic of strength and vigor. The light hair showed the lymphatic temperament as an attribute of weakness and indolence. An athlete with light hair would have been an anomaly in art, while, on the other hand, painters have always given blonde hair to figures which expressed grace and beauty, rather than heroism and strength.

Dark and light hair are found in both sexes about with equal constancy. The light-haired woman impresses us with a sense of beauty united to weakness, and makes an irresistible appeal for protection; while the brown or piquant black-eyed maid conveys the idea of strength, beauty, and vivacity. Beauty is an attractive gift, which females enjoy in common, but which being variously modified by exterior form, entices and attracts either by interesting our feelings or by exciting them. Light eyes are frequently associated with light hair, whilst the black is generally the appendage of a sparkling and vivacious eye.

The deep-red variety and its various shades denote a sanguine or violent temperament. At one time this color was fashionable in Rome, and about a century ago it found favor in Paris. One peculiarity of the fiery red hair is that it is often lubricated with an oily secretion which exhales a strong odor.

The coloring matter of the hair consists of the same pigment as is found in the mucous layer of the epidermis, and corresponds to the color of the eyes and eyelashes. Light hair accompanies a white and thin skin, and black hair a dark and thick skin. Red hair is usually accompanied by numerous reddish freckles upon the skin, but when the milk-white skin of the albino is present the hair is of a peculiar yellowish-white tint. When the hair is light, the eyes are generally blue; when dark, they are brownish-black; when the hair loses the light shade of infancy, the eyes grow darker; and when the hair turns gray in advanced life, the eyes lose much of their former color. Many different causes, such as parentage and heredity, were supposed

to influence the color of the hair. Intensity of light and heat were supposed to play an especially important rôle, but the changes induced by them are not transmitted from the parents to the offspring. The child of the most sun-burned rustic is born equally fair with other children. The ancients believed that all dark-colored nations were the inhabitants of hot climates, but modern discoveries made us acquainted with dark-colored nations inhabiting the coldest countries, and with others of various shades living together in the same climate.

The tawny Hungarian has dwelt for ages upon the same parallel of latitude and in the same country as the whitest nations of Europe; the red Peruvian, the brown Malay, and the nearly white Abyssinian dwell in the same zones as the blackest people of the universe. The natives of Van Diemen's Land are black, while the Europeans of the corresponding northern latitudes are white; the Malabars, who live in the hottest climate of the globe, are no browner than the Siberians, who live in the coldest; the Dutch, who have resided for more than two centuries at the Cape of Good Hope, have not acquired the sooty color of the native Hottentot; and the Guebres and Persians, who intermarry with each other, remain white in the midst of the olive-colored Hindoos.

Civilization probably plays an important part in producing the changes of color and appearance of the skin and hair. It was frequently noticed during the days of slavery in the United States, that those negroes who lived and worked upon the plantations preserved their African characteristics, whilst those who were employed as waiters and domestics acquired a more refined appearance, and their hair grew longer and became less bristly. The numerous tribes of the South Sea Islands are apparently of the same race, and vary only according to their advancement in civilization; the New Hollanders who are in the lowest state of barbarism are black, with short, dark hair; the Friendly

Islanders are more advanced, and not quite so dark, while the higher orders of Otaheite and the Society Isles are still more refined, and have light complexion and flowing hair. The Jews who are settled in the neighborhood of Cochin are divided in two classes—the Jerusalem or white Jews, and the ancient or black Jews. The former look upon the latter as of an inferior race, and of an impure *caste*.

CLASSIFICATION OF THE HUMAN RACES FROM THE CHARACTER OF THE SKIN.

It is well known that the color of the skin and the appearance of the hair vary a great deal in the human race. The most decided colors are the white, the yellow, the olive-colored, copper-colored, the brown, and the black. Of these principal colors there are many varieties. These differences in color are not due to any difference in the texture of the skin, but to the supply of pigment in the rete mucosum, as described in the section upon the anatomy of the skin. The color of the skin and the texture of the hair have a remarkable relation to the typical characteristics of each race. The classification of the human race into *liotriques*, or glossy-haired, and *ulotriques*, or bristle-haired, depended upon the condition of the hair, as to whether it was thick or thin, curled or bristled, long or short, and to its distribution upon the various regions of the body.

The most generally accepted classification, however, is the following:

A. Caucasian, white, or European. In this division the hair is more variable than in any other race, but the prevailing color is nut-brown, which runs into the yellow in some cases, or the dark in others. The hair is glossy, generally straight, but sometimes wavy or curled. There is usually an abundance of beard covering lips, cheeks, and chin.

B. Mongolian, yellow, or Asiatic. Here the hair is black, straight, and stiff, but scanty upon both head and face. The color is evidently influenced by the olive color of the

skin. The Chinese and Japanese are typical specimens of this race.

C. Negro, black, or African. The hair is deep black, crisp, woolly, and always curled. The skin is black, of which different shades are found. The mucous membranes are red-violet colored. The original negro race is divided into different tribes, which are usually savage, and without industrious habits. They are generally fanatical in their religious beliefs. This want of civilization on the part of the negro gave the pretext for making slaves of them. It is now a demonstrated fact, that when he is cultivated and educated, the negro is not inferior to the white man in any particular.

D. Indian, red, or American. The people who inhabited America at the time of its discovery had all the characteristics of a distinct race. The various tribes had so many traits in common as to justify their classification under one race, although they were found in all parts of the country, and often had marked differences of character.

The skin is red or copper-colored, and the hair is black, stiff, straight, and scanty, from which fact they were supposed to be a branch of the Mongolian race; but their color, their well-defined features, and prominent nose showed that this opinion was erroneous. It was supposed that the American Indians had no beard, but this is not true, although their beards are much less abundant than those of the Europeans.

E. The brown or Oceanic. These are usually classified as the Malay. This race is made up of different types of which the Malayan, the Polynesian, the negro-Oceanic, and the Australian are the principal. They inhabit the islands of Oceania or the Indian Ocean. They resemble somewhat the types of the neighboring ancient continent.

The Malayan tribes inhabit the Marian, Philippine, Moluccan Islands, and the Peninsula of Malacca, and resemble the Chinese and the Hindoos. Their skin is of a

yellowish color, and their hair is black, soft, curled, thick, and luxuriant.

The other divisions of this race, especially the negro-Oceanican, have long and luxuriant hair.

CHAPTER III.

FUNCTIONS OF THE SKIN.

THE skin possesses the functions of respiration, inasmuch as it absorbs oxygen, and gives off carbonic acid gas. A good deal of water is also excreted by the skin.

According to Gerlach, the amount of oxygen absorbed by the skin is not at all in proportion to the quantity of carbonic acid gas which is eliminated. This carbonic acid gas, according to Shaeling, amounts to one-fiftieth of the quantity expelled by the lungs; but according to Regnault, it is only one-hundreth. The former estimate would put the amount of carbonic acid gas excreted by the skin during twenty-four hours at from ten to twenty grammes. No doubt there is also a trace of nitrogen with this carbon dioxide. According to Vierordt, the amount of water eliminated by the skin during twenty-four hours, is double the quantity given off by the lungs, and measures six hundred and sixty grammes.

Under a moderate temperature and a moderate amount of muscular exercise, the water is usually in the form of an aqueous vapor, and is known as the perspiration. The quantity of perspiration depends upon the amount of blood in the capillaries of the skin; this capillary blood supply is influenced by various conditions of the body, and by the atmospheric temperature and humidity. When the atmospheric temperature is high, the capillaries of the skin are

enlarged and the perspiration is increased; when the temperature is low, the superficial vessels are diminished in caliber and the perspiration is lessened. When the humidity is diminished the air becomes dryer, the evaporation is more rapid, and consequently perspiration is increased. The perspiration is increased by over-indulgence in liquids of any kind, and also by muscular exercise.

When the water which is eliminated by the skin increases to such a degree as to produce distinct drops upon the surface, it is called visible perspiration, or sweat. All the causes which produce an increase of perspiration will, when intensified, produce sweat. Sweating is the result of such an overfilling of the superficial blood-vessels that evaporation is no longer sufficient to carry off the water eliminated. The sweat contains more solid constituents in solution than the perspiration; it may be local or general; varies in different individuals, and is greatly influenced by physical and mental conditions. This last mentioned fact is well illustrated by the sweating which occurs in fevers, or as the result of fear or grief.

The sweat is a clear fluid, of an acid reaction, and a peculiar odor, which varies in the different individuals and in the different regions of the body.

The solid constituents of the sweat amount to one per cent of the whole volume. According to the researches of Schottin and Funke, this percentage varies from three-fourths of one per cent to two and a half per cent. One-half of the quantity of solid constituents is made up of the chlorides of sodium and potassium. Salts of ammonia never exist in the normal sweat, but result from changes in the nitrogenous principles. Picard and Funke have demonstrated that urea exists in the sweat in the proportion of one to one thousand. The sweat contains several volatile acids, of which the chief is formic acid; according to Schottin it contains acetic and butyric acids, and a small proportion of fatty substance.

The skin over the body represents a surface of fifteen square feet. There are two opinions in regard to the perspiration; one being that all the water excreted comes from the sweat glands; the other, that it comes from the interstices of the epidermis. The constant secretion of the sweat; the existence of small ducts leading from the sweat-glands to the surface; the fact that these glands number about one thousand to the square inch (being somewhat scarcer in the lower extremities and shoulders), all go to demonstrate that the first opinion is correct. Krouse's calculation, that the sweat glands number two millions over the whole surface, is not correct, nor would such a number suffice to secrete the amount of sweat which is daily eliminated.

Sweating is one of the causes which reduce animal heat in the organism, a fact which is of importance; because when evaporation of the sweat is prevented, death results, as can be proved by the following experiment: If the whole surface of a rabbit's body be covered with an impermeable varnish, in a few hours the animal becomes very weak, the respirations become very difficult and frequent, and the pulse very rapid; albumen appears in the urine, and sensibility to external impressions becomes very much diminished; sometimes paralysis, at other times convulsions, occur; the bodily heat is considerably diminished, and the carbonic acid of the expired air is reduced to one-seventh of its normal volume, and death results. According to Valentin and Schiff, if the animal be removed, during the course of the experiment, to a warmer temperature, some signs of improvement take place for a few hours, the respiratory gaseous exchange improves, the respirations become stronger, but death finally occurs. The higher the temperature of the room in which the experiment takes place, the longer will the animal remain alive.

Post-mortem examination of an animal upon which such an experiment has been performed, shows marked congestion

in the various organs and extravasations upon the serous surfaces.

The temperature of the air has a marked influence upon the activity of the organic functions of the skin. When the external temperature is low, the superficial blood-vessels are diminished in caliber, a greater impediment to the flow of blood exists, and there is a diminished quantity of blood therein. As a consequence the perspiration diminishes, and sweating can not occur. On the other hand, when the external temperature is high, the supply of blood becomes richer, the skin is softer, the pigmentation more abundant, gaseous exchange is greater, the sweat flows abundantly, the secretion of the sebaceous glands is increased, the sensitiveness is more marked, and the epidermic production is more pronounced.

In cold weather there is a greater radiation of heat from the surface of the body, but this is regulated and compensated for. The circulation of the blood in the capillary vessels of the skin is diminished and retarded. This causes diminution of blood supply, and consequently of the perspiration; the lessened evaporation from the diminished perspiration decreases the radiation of heat. The loss of heat and its reproduction is so harmonious in the organism, that the body maintains a uniform temperature in any climate. Only in very cold weather the temperature of the skin is lower than that of the internal organs, but in warm weather the internal and superficial temperatures are made equal.

Heretofore we have been considering the skin as an organ of excretion, but it has also the power of absorption. The epidermis forms a thick layer over the whole body, is deficient in blood-vessels, acts as a boundary between our internal organs and the external world, and limits but does not prevent absorption. It is hygroscopic; for, if the hands be held in water for some time, the epidermis becomes thicker, whiter, and distended, from the water which has penetrated its structure. When this water reaches the

corium it is readily absorbed. If a warm bath be taken, the weight of the body is increased, a fact which must result from the taking up of water by the epidermis. It was formerly supposed that this increased weight was due to the diminished secretion of sweat, and the inhalation of aqueous vapor from the bath, but W. Edwards has demonstrated that the perspiration is not lessened during a warm bath, and this increase of weight has occurred in persons who have not breathed in the steam of the bath-water, but have breathed through a tube, connected with some space distant from the bath-room.

Substances dissolved in the bath-water are also absorbed, as for instance, corrosive sublimate, and they may afterwards be detected in the urine or the blood. Gas is also absorbed.

The physical condition of the skin makes it more or less capable of absorption. A rough, dry skin absorbs much less than a delicate and soft one; hence absorption is much easier and better in the young than in the old, in Summer than in Winter.

The epidermis protects the organism against a great many poisonous substances which may come in contact with its surface. When water, gas, or other substance has penetrated the epidermis, however, it is rapidly taken up by endosmosis into the lymphatic vessels, and is there brought into the general circulation.

The skin has another function, which has its origin in the sense of touch, called sensation. The sense of touch embraces a great many varieties of sensation. The general classification is that of Aristotle, into general and special.

Among general sensations may be classed the sensation of space (*spatium*), which is common to both touch and sight; the sensation of extension, which gives us our knowledge of the form and location of objects. Special sensations, or the special senses, are those of touch, sight, feeling, hearing, and smelling.

General sensation may be defined as that in which two

or more of the special senses are brought into play ; special sense, that in which one set of sensory nerves are acted upon. Sensation may also be objective or subjective ; the objective sensations being produced by external stimuli, the subjective being produced by stimuli within us, acting upon the nervous sensitive apparatus, or upon some portion of the encephalon. Both subjective and objective sensations are the same in their essential characteristics, because the nerves always reproduce the sensations proper to them.

Sensation, although it consists only of a change in the condition or state of the sensitive apparatus, is ordinarily referred to the external world ; that is, sensation is considered as a property of the external object. It is for this reason that the insane ascribe the slightest sensation to the presence of insects or animals upon the skin. These are called hallucinations of sensibility, as, of course, such insects or animals do not really exist.

Sensitive nerves have their maximum of impressibility at the periphery. By the irritation of a nerve-trunk, we refer the subsequent sensation to the place where we are used to receive impressions. In performing an amputation of a limb, the cutting of the nerves causes the patient to feel pain on the extremities of their ramifications. And it is remarkable that some years after the amputation the sensations are referred to the missing limb, in consequence of the irritation of the nerve-trunks at the point of division.

Sometimes, when subjected to the influence of various sensitive stimuli, we are not enabled to receive distinct perception of them. In such a case, the perturbation of the mind, or the persistence of a monotonous stimulus, has very much to do in destroying the attention. What causes the distinct perception of any sensation, is the concentration of the attention on it.

In the physiological state the organ of touch receives two kinds of sensation, viz.: That of pressure, and that of temperature. These sensations, increasing in degree and

passing the limits of the normal, produce a new kind of sensation, which is pain. For this sensation there is no single encephalic organ, but many central nervous organs are established. This opinion is sustained by the observation, that some portions of the skin lose the sense of pressure, the sense of temperature remaining intact; in the same way parts of the skin being completely insensible to the impression of pain, maintain unaltered the sense of pressure and of temperature.

These observations, showing that the sense of pain is separate from the sense of pressure, gave rise to the idea of the existence of a special kind of nerves, which were called "the nerves of painful sensation."* It was believed that the sensations of the most delicate nerve-fibres were separate, like those of their trunks, and proceeded without comingling until the brain was reached. Therefore in a region, receiving through anastomosis different nerves, if one of them be paralyzed, the sensibility of the region is not entirely lost, and the points capable of feeling are those corresponding to the primitive fibres remaining intact. Pathology sustains this opinion: An individual having been affected for a long time with anæsthesia of the inferior extremities, and being unable to perceive weight, pricking, etc., will feel cold in the feet, electricity, and the presence of a piece of ice, which produces a burning sensation on the anæsthetic skin. (Tommasi Physiology.) Another affected by hemiplegia, retaining the sense of touch in the paralyzed hand, was unable to perceive heat. One hysterical woman presented a case of hyperæsthesia to heat on the scalp, retained the natural but benumbed sense of pressure and insensibility to pain.

In the present state of science we should not be justified in admitting the existence of different nerve-fibres for each separate sensation, unless their presence be demonstrated by experience and investigation.

* Lussana, *Fisiologia del dolore*. Milano (1860.)

It is also interesting to note that two tactile impressions, acting simultaneously upon the skin, produce two distinct sensations, and thus produce the idea of extension. In the same way two tactile impressions stimulating the cutis, one after the other at rapid intervals, are perceived as distinctly separated, to give us the idea of time, a sense of duration.

E. H. Weber profited by this fact in determining the acuteness of the sense of touch in the different regions of the body. Two points of a compass at a certain distance are perceived as two separate points; but on diminishing the distance between them the skin ceases to receive the impression of two separate points, the sensation being that of one only, or as would be produced by an oval-shaped object. The sensitiveness of touch varies in the different parts of the body; as, for instance, on the lips the points of the compass, only one line apart, are felt distinctly separate, while on the thighs at the distance of seven lines they are scarcely perceived as separate.

The delicacy of the sense of touch depends upon the abundance of the nervous ramifications, and upon the delicacy of the epidermis; therefore in the young it is much more developed than in the old, and women are much more sensitive than men. The sense of touch enables us to judge of the resistance, the surface, the dynamic state, or the degree of temperature of a body. This judgment is a distinct change in the state of some organ within us, and is consequently a subjective sensation.

The sense of touch resides in the derma, and proceeds along the posterior spinal nerves and some of the sensitive ramifications of the cerebral nerves.

Tactile impression, when exaggerated, passes into pain. Burning pain exists in several skin diseases, and this effect is exactly the same as that produced by contact with fire or high temperature.

Itching is an alteration of the sense of touch, and is sometimes less bearable than pain itself. Many a patient

prefers to suffer from the pain, and by scratching himself obtains a pseudo-relief. This action of scratching is often reflex in character, for patients scratch themselves in their sleep, or against their will.

Scratching produces excoriations, which will be considered under the head of Causes of Cutaneous Eruptions.

We must look upon itching as a distinct effect upon the sense of touch—an effect which is only produced in one way, but the exact nature of which is not understood:

USE OF THE HAIR.

What purpose the hairs on the human body are designed to serve is very difficult to discover. In the lower animals the hair is evidently intended to protect them from the cold, when we see that the animals in tropical countries have scarcely any; on the contrary, in the polar regions they are thickly clothed with a heavy fur. The hair on the head is probably intended to protect it from cold and from the direct influence of the sun. The hair of the eyebrows and eyelashes, as was observed by Socrates, is probably for the protection of the eyes from sweat falling into them from the forehead, and the tufts under the armpits to prevent the chafing of the skin from friction.

What is the use of the short hair which is found on almost every part of the human skin?

It was believed that it may contribute in some way to the sense of touch, but we know that hair has nothing to do with the sensitive papillæ of the skin, which serve only for the sense of touch. Other hypotheses were proposed as to the influence which these hairs can have on the electrical state of the body, or on its animal magnetism. According to the opinion of Darwin, the small hairs of the body are nothing else than the remaining relics of the hair which covered man in his savage state. There can be little doubt that the hairs thus scattered over the body are the rudiments of the uniform hairy coat of the lower animals.

The different races differ much in hairiness, and in the individuals of the same race the hairs are highly variable, not only in abundance, but likewise in position; thus in some Europeans the shoulders are quite naked, whilst in others they have thick tufts of hair. Darwin was informed by Sir James Paget that often several members of a family have a few hairs in their eyebrows much longer than the others; so that even this slight peculiarity seems to be inherited. These hairs also seem to have their representatives; for in the chimpanzee, and in certain species of macacus, there are scattered hairs of considerable length rising from the naked skin above the eyes, and corresponding to our eyebrows; similar long hairs project from the hairy covering of the superciliary ridges in some baboons.

A curious case is also offered by the fine, wool-like hair (lanugo), with which the human fœtus is covered during the first six months. The whole surface, including even the forehead and ears, is thus thickly clothed, and it is a significant fact that the palms of the hands and the soles of the feet are quite naked, like the inferior surfaces of all four extremities in most of the lower animals; from which considerations Darwin concludes that this can not be an accidental coincidence, but that the woolly covering of the fœtus represents the first permanent coat of hair in those animals which are born hairy. In the inferior animals the hair is remarkably modified by climate. In warm countries wild animals have little hair, compared with the close, shaggy coatings of those in the polar regions. Dr. Jameson, of Cheltenham, says that he observed a full-grown sheep, which in Jamaica was lank and covered with hair, become, in four months, on being removed to New York, fat, and copiously covered with wool. On arriving again in the West Indies, it assumed, in less than three months, its hairy coat, though all the while it was on shipboard and had very little change of food. Dogs taken from Europe to the West Indies are said to lose a greater part of their hair.

We observe many varieties in the growth of the hair. Some men have a very hairy skin, looking like the skin of an animal. The head is that part of the body on which the hair is always most abundant, providing it with a kind of pad, by which it is both protected from impressions of mechanical injury and from the inclemencies of the weather. It is worthy of remark, that its limits on the sides of the head never vary, for they always correspond above the ear, but it sometimes extends behind, over the upper part of the neck. On the forehead, however, the varieties are infinite, sometimes extending lower down, or sloping higher up, sometimes tracing a curved line, at other times forming a kind of triangle, the vertex of it corresponding with the middle of the forehead. These limits are never traced with any degree of uniformity.

The hair contributes, in some degree, to the expression of the face. We say in some degree, because it is much less to the width of the forehead than to the direction approaching the perpendicular, that we refer the grand and majestic air which we ascribe to gods and heroes.

CHAPTER IV.

MORBID IMPRESSIONS ON THE SKIN.

ALL the impressions which, directly or indirectly, contribute to the alteration of the structure or of the functions of the skin, are morbid causes, and we must take them into consideration when speaking of the hygiene of the skin. The ætiology is, of course, the part of the medicine which offers the greatest difficulties, and very often illusory results. In medicine we do not find such constant *rapport* between the cause and the effect as we find in the inorganic world, since in the animal body the effect is modified by the functions of life. Therefore, we must carefully study

the skin as an organ in connection with the whole system, and as an organ by itself, and we find two classes of different causes; one residing in the organism in its individuality, in its structure, which we will consider under the head of *Internal Causes*, and another group of morbid causes acting on the skin by their physical or chemical power in the locality, or *External Causes*.

INTERNAL CAUSES.

This chapter will be devoted to a consideration of those impressions which have their origin in the interior of the animal economy, and which, directly or indirectly, produce disturbances of function or in the texture of the skin, and thus predispose it to disease. It is a matter of surprise that in all treatises upon diseases of the skin, ætiology is almost entirely neglected, and the influence of age, sex, race, etc., as morbid causes, is made so unimportant. Usually the attention is chiefly directed to the local irritation and the external application. Still it must be admitted that there is residing in the individual some influence which causes the morbid local irritation to act in a particular way, and in no other. Suppose, for example, a washerwoman uses soap, water, soda, etc., for twenty years, without in any way affecting her hands, but after that time acquires a diffuse eczema of hands, arms, and face. Why is it that these local irritants—the soap, water, soda, etc.—now produce an eczema, when for twenty years their use was not followed by any deleterious results? The answer can only be found by a careful study of the general economy, taking into consideration those internal impressions or factors which incline the skin to disease.

In point of fact, the woman is older, the menses have disappeared, the face is paler, the blood is not so rich as formerly, the general nutrition has deteriorated, and consequently the skin is dryer and thinner than before, and hence less resistant to the effects of the irritants.

Innumerable examples could be adduced, but the one just mentioned will suffice. We need only remember that all pathogeny consists of an impression and a reaction; that the intermedium of the animal economy, with its strength and its peculiar reaction, comes between the morbid influence and the resultant disease in such a way as to modify or render inoperative the noxious agent. The old-time physicians, and a good many of to-day, from lack of proper acquaintance with skin diseases have attributed all eruptions to impurities of the blood, while those who are more familiar with these diseases know that these eruptions are chiefly due to local causes. *Herpes tonsurans*, *Eczema marginatum*, *Sycosis parasitaria*, and *scabies* were very often treated as impurities of the blood by internal remedies, unsuccessfully; whereas, to-day, an antiparasitic mixture locally applied cures them in a short time.

Lorry was the first to make ætiology the basis of a classification for skin diseases; then came Beaumés, followed by Alibert and Bazin, who made diathesis the most important factor. But this classification could not be maintained because of the confusion produced by the fact that some skin diseases have many different causes. A great deal of skepticism as regards the ætiology of these diseases arose as a consequence; but this skepticism must not be pushed too far, because the general economy, the intermedium, as we have called it, with its various degrees of reaction, changes the effect of the morbid impressions.

INDIVIDUAL CAUSES.

We consider every liability to acquire disease because of a general disposition in the body, as an individual cause of skin disease. Thus heredity, temperament, age, antecedent diseases, etc., are individual liabilities, which, under certain circumstances, act as internal predisposing causes of the general system, and efficiently contribute to the development of affections of the skin.

HEREDITY.

The word heredity means succession from parents to children, and as we have a social heredity, which is the basis of all social institutions, so we have a physiological and a pathological heredity, which is the subject of this article.

The physical and the moral qualities are transmitted to children in consequence of the impression communicated by the parents to the germ in the act of generation. From both of the parents come the health and the strength of the newly born. From the moment of the first generative impression upon the amorphous substance of the egg, the future human being is destined to a peculiar organization and a peculiar appearance. Upon this first generative impression will depend whether that new existence is to be a happy or an unhappy one; whether the future man or woman is to be strong or weak, intelligent or idiotic. For from that moment the human egg begins to feel and to follow those natural laws which result in the formation of the new human being. These are facts which can not be explained by any physical or chemical laws; no science is able to rend the veil asunder; it is the mystery of life.

Every animal has a great similarity to its progenitors; a similarity which is sometimes general, and at other times is limited to one or more parts of the body. In man this similarity prevails as regards the head, the trunk, the extremities, the hair, but especially as regards the face. The contour, the color, the expression, and the features are distinct characteristics of the race and the family. In some families these distinct characteristics are traceable back to the original founder; as, for instance, in the Bourbons and the Hapsburgs the same type, the same shape of the nose, exist as was found in their ancestors. In the same manner peculiar race characteristics are found in different tribes. Small hands and feet are acknowledged signs of an hereditary

birthright. So, also, many faults of organization are inherited, and we may repeat with Aristotle: "*Gignuntur autem laesi ex laesis, claudi ex claudis,*" etc.

The generative impression, which is capable of perpetuating the vitality, the moral qualities, the color, the form, and the faults of organization, is also capable of reproducing in the descendants the diseases of their ancestors, diseases which we call hereditary. That hereditary diseases exist is beyond doubt, and few will be found to deny it. It is therefore not necessary to enter into a demonstration of so evident a fact. It is, however, difficult to penetrate the mystery which presides over the transmission of physiological and morbid dispositions. We inherit directly from the mother and from the father, and we inherit indirectly from the grandparents. It is not difficult to understand how the mother transmits certain characteristics, because she furnishes the germ, which is nourished by her own blood until perfection of growth is reached, and thus any virus or morbid disposition can be transferred to the new being. On the other hand, it is not so easy to explain transmission from the father, because after fecundation of the woman has taken place, all transmission must be due to the influence of the semen, from which must come diathesis, diseases, and faults of organization. In the heredity from the grandfather we see that kind of transmission in which characteristics pass over one generation entirely to reappear in the third. It is known as atavism. The fact exists, explanation is in darkness. Not only virulent and constitutional diseases may be transmitted, but the faults of form, and the moral disposition, are also handed down, for the explanation of which fact we must recognize a psychological law which governs the vital agent in the perpetuation of races.

Life is the result of the seminal impression, and with this impression begins the metamorphosis of organic substances with all their varieties, normal and abnormal. Disease in the parents may be transmitted to the fœtus, producing

disease or indeed death, or it may lie latent in the child's system, and develop again as disease in a few days, a few months, or a few years after birth. Sometimes even the disease does not appear until the patient has reached his fiftieth or sixtieth year.

The generative impression, as Bouchut (*Pathologie Générale*, Paris) says, may produce a predisposing morbid cause, which develops into a predisposition or a real disease at an earlier or later date, as above mentioned. As the child sometimes changes his features—in early life resembling the mother, and later the father—he may change the tendency to the disease, which he received as a morbid inheritance. Frequently the disease germ remains latent in the parent, and develops at an early age in the children. There are numerous cases upon record in which the parents were in apparent good health, and the children died from diseases which afterwards caused the death of the parents. But heredity does not always develop into disease, because if that were true, families would be destroyed, and the inhabitants of the earth would degenerate year by year or entirely disappear. To prevent such a catastrophe, hygiene and medicine come to the rescue. The crossing of families, the intermarriage of people of different nationalities, different temperaments, and different constitutions, the changing of climate, etc., all produce a beneficial influence upon the children.

It is not necessary, however, to deal any longer in generalities, and we shall now proceed to consider the hereditary origin of skin diseases, and afterwards show that hygiene may altogether do away with this tendency, and prevent their development.

That heredity plays an important rôle in the production of diseases of the skin can be established under the following heads: I. As a diathesis in the humors; II. As a disturbance in the nerves; III. As a tendency, in the cells of the tissues composing the skin.

I. HEREDITARY DIATHETIC DISEASES.

The principal diathetic disease, which may be transferred from parents to children, is syphilis. Syphilis infects the germ at the moment of fœcundation; the egg at the first development is already contaminated, and in many cases the fœtus dies before maturity.

The hereditary influence of syphilis was denied by Broussais, Jourdan, De Bru, Desruelles, and Devergie; but they also doubted the existence of a syphilitic virus. Others, at the head of whom was Kluge, believed that the transmission of the syphilitic virus to the child could only take place from mucous plaques or pus in the genitals of the mother while the child was being born. Hunter believed that only the pus of the syphilitic chancre could be the instrument of transmission, and he maintained that the fœtus could only be infected through the mother's blood as it passed through the placenta. He denied that when the mother was not infected, the fœtus could get syphilis from the father alone. Swediaur, who was of a different opinion, held that the germ could have syphilis from a syphilitic father even when the mother had shown no signs of the disease. Modern syphilologists, even those who deny the inoculability of syphilis through the blood, admit the possibility of the transmission of the disease from a syphilitic father or mother.

Usually a woman who has been recently infected with syphilis does not go to the full term of pregnancy, the fœtus dying generally at the beginning of the eighth month. Women who have an old case of syphilis rarely bare children, a fact which is explained by Barnes as due to a morbid condition of the uterine mucous membrane, which predisposes to miscarriage. This syphilitic morbid condition of the uterine mucous membrane causes a specific inflammation in the decidua, and consequently in the placenta, and hence

produces the death of the fœtus. A curious fact, to which reference must also be made, is that sometimes a woman may acquire syphilis after pregnancy has begun, and yet the child be born healthy.

Oeuvre, of Christiania, has published some statistics, to which Zeissl refers, in which he states, that of one hundred and twelve cases of hereditary syphilis, in ninety-five the mother was syphilitic before pregnancy began, and in the remaining seventeen the father alone was affected, or both mother and father had the disease.

Diday holds the opinion that when the parents are syphilitic, the first child dies *in utero* before maturity of the fœtus, whereas the sixth or seventh child will be born entirely free from the disease. Experience, however, has shown that in some cases the first child is syphilitic, the second healthy, and the disease reappears in the third. Hutchinson referred to a case in which a syphilitic woman gave birth to twins, one being syphilitic, the other showing no signs of the disease. But in such cases we must bear in mind the words of Professor Sigmund: "Follow that child through all the periods of his life, and then you will be able to say whether he had syphilis or not."

A syphilitic father can have syphilitic children, the mother remaining apparently healthy, but this immunity on the mother's part is only apparent. Zeissl refers to some cases of women whose husbands had latent syphilis; these women very soon lost their bright appearance, and suffered from pains in the joints, headache, etc., and these symptoms all disappeared after rational antisyphilitic treatment.

As before mentioned, the fœtus very often dies in the womb of a mother suffering from syphilis, the time of death being usually the fourth month; it may, however, die between the sixth and seventh months. The skin of the fœtus is macerated, and the epidermis strips off in large flakes. It has not been decided whether the fœtus dies from its own disease or from the disease of the placenta, but it is

known that the placenta of a syphilitic woman presents various morbid alterations. It is not well developed; dense masses are found upon the uterine surface, and frequently dense, hard adhesions are between uterus and placenta; the placenta looks pale, presents numerous points of fatty degeneration, and breaks down easily.

Upon post-mortem examination of such children, the ventricles of the brain are found to be filled with serum; and often the *venæ umbilicales* are found to be in a condition of atheromatous inflammation, which condition produced the child's death.

When a child acquires from its parents the sad inheritance of syphilis it may be born apparently healthy or with the evident signs of the disease, or those symptoms on the part of the skin and the glands which are sometimes attributed to scrofulosis, may not appear for years. I recollect the case of a young man, who gave the history of hereditary syphilis, and in whom at his sixteenth year, *lupus serpiginosus* spread over his face. I cured him completely by the use of Emplastrum Hydrargyri on the surface, and large doses of Decoctio Zittmanni internally.

The age of the syphilis in the parents has a very great influence upon the disease in the children; for the more recent it is in the former, the more severe will be its symptoms in the latter. If the parents were under a regular course of antisymphilitic treatment before the birth of the child, the syphilitic symptoms in the child will be much milder, and may not show themselves at all until some time after birth. When the disease is neglected in the parent, the children show very severe symptoms, or rarely arrive at foetal maturity.

HEREDITARY SYPHILITIC AFFECTIONS.

When a child comes into the world, bringing with it syphilitic symptoms, the syphilis is said to be congenital. The child is usually badly nourished, and the skin flabby and

wrinkled, which gives to it the appearance of old age. The mucous membranes are usually affected; the larynx is in a condition of catarrhal inflammation, and this gives a peculiar tone to the child's cry, which is characteristic of hereditary syphilis, and when once heard is never forgotten; the nose is affected, too, with that form of catarrhal inflammation known as *coryza syphilitica*. Sometimes syphilitic plaques are found upon the lips and the internal surface of the cheeks. The alterations in the mucous membrane consist usually of *erythematous hyperæmia*, or papular eruptions. In the erythematous hyperæmia the membrane is usually dry and red, or it may be covered with a catarrhal secretion. In the papular eruptions, the membrane shows whitish spots, erosions, or even true ulcerations. The whitish spots are due to a turbidity of the epithelium, produced by the upward pressure of the underlying papilla. The ulcerations usually appear in places where the mucous surface has been exposed to pressure, as upon the internal surface of the lips, near the arms, etc. These ulcerations may become fissures, from which blood issues and forms crusts; hence pain is produced upon opening the mouth or in having a stool. These same ulcerations may also occur upon the tonsils and in the pharynx.

In the *coryza syphilitica* of the newly born the mucous membrane of the nose is red and swollen, the epithelium turbid and sometimes covered with erosions; at first a thin fluid mucous exudes, afterwards taking a yellowish, thick appearance. The anterior nares from the initiation of the discharge appear red, and fissures occur from which blood issues, thus giving rise to crusts and excoriations. Respiration through the nose becomes difficult, and nursing becomes almost impossible, not only from this difficulty in respiration, but also from the pain arising from the condition of the tonsils and the palate. These symptoms rarely occur alone, but usually they are accompanied by eruptions upon the skin, which we shall now consider.

HEREDITARY SYPHILITIC ERUPTIONS UPON THE SKIN.

These eruptions do not differ much from those usually seen in the acquired syphilis of the adult. *Syphilis maculosa* or *erythematos*a of the child occurs as spots usually upon the breast, forehead, and at the margin of the hair. It is never seen upon the neck or face. Inasmuch as the skin of a child is very tender and easily rendered hyperæmic, these eruptions are sometimes overlooked, but they become very apparent when the patient is taken out of a warm bath into a room in which the temperature is cool. When the parents have been affected by syphilis for a long time, the syphilis hereditaria is hard to see, especially when the eruption appears some days after birth. This fact might be taken as an argument for the infection having taken place during birth, while the child was passing through the maternal parts. Erythema syphiliticum rarely appears alone, but is usually accompanied by a papular eruption. This papular eruption appears gradually—first a few papules appearing, then others. These papules are frequently excoriated or covered by crusts which show an erosion in the center. It occurs chiefly upon the nares, upon the posterior and internal aspects of the thighs, upon the back, upon both sides of the breast, and upon the soles of the feet.

Hereditary syphilis may also appear in the form of *pustulæ* or *blebs*, which are sometimes present at birth, but more frequently appear a few days thereafter. These pustules may show themselves on the face, the back, or the extremities.

A bullous, or large-blebbed eruption, known as *Pemphigus syphiliticus neonatorum*, appears upon the palms of the hands and the soles of the feet. This form of eruption begins with a papule which pushes up the epidermis, and then from the transudation of serum, which is often mixed with blood, a *bull*a or blister is formed. The epidermis becomes whitish and eroded, and may break, allowing the contents of the bulla to escape, thus exposing the inflamed

derma beneath. Sometimes the fluid contents of the bulla are absorbed, the epidermis becomes flat and dry, and forms a hard scab or crust. These bullæ are usually the size of a pea, and may be either closely aggregated or widely separated. I have had the opportunity of seeing but few cases of *Pemphigus syphiliticus neonatorum*, but those cases all ended fatally.

We now leave the newly-born child, and proceed to consider the skin affections which occur during the course of his later life, which are dependent upon syphilis.

At the head of all these later eruptions stands *Lupus* (*Vulgaris serpiginosus*). This is an odd name, which for a very long time has been applied to various diseases of the skin, characterized by a destruction of the skin tissues. Willan grouped under the head of *Lupus* a great many cases of ulceration of the face, beginning with an eruption of tubercles, but he never gave an accurate definition of the disease. Hebra and Kaposi have pointed out, however, the following symptoms as characteristic of the affection: "A non-contagious, not hereditary, painless disease of the skin and adjacent mucous membranes, appearing as a chronic eruption of brownish-red nodules the size of a pin-head; the nodules dip down into the corium, and may increase to the size of a split pea, or even grow larger, the size depending upon the quantity of infiltration; they disappear by a process of involution or ulceration, and leave in their place a scar or cicatricial atrophy of the skin."

This definition, or rather description, gives but a very slight idea of the disease.

Lupus is a granular new growth, consisting of an infiltration of small embryonic cells, which never attain maturity or organization; an infiltration which may be compared to the infiltration of scrofula, and which Virchow calls *granuloma*. The anatomical seat of lupus, according to Auspitz, is the connective tissue of the corium. The cells of the granuloma are in groups, thus forming the nodules observed

upon the skin. These nodules are of a brownish-red color, with a hard consistency, and are arranged closely together in semicircular lines. When the cells attain a certain size, they either become softened, break down into pus and produce ulcerations, or they are reabsorbed and produce an atrophy of the skin, with cicatrization. The process is exceedingly protracted, as is always the case with granulomata of the skin.

Kaposi* pointed out the differences between the ulcerations from lupus tubercles and from syphilis. The ulcerations from both are usually round, with sharp edges, but those of lupus are not painful, are frequently flat, red, bleed easily; while those of syphilis are painful, with edges and bottom infiltrated and covered by a lardaceous secretion. Lupus begins with an eruption of small, pin-head-sized nodules situated deep in the corium; syphilis begins with large perceptible papules. Lupus is much more chronic than syphilis. Lupus occurs usually in early life; syphilis may occur at any time. In lupus the destruction of tissue is not so extensive as in syphilis. Finally, the syphilitic papules disappear quickly under the use of the mercurial plaster, while lupus remains unaffected by it.

This distinction is only applicable in those cases of well-marked lupus and *Syphilis ulcerosa*, but is not sufficient to differentiate between an old case of lupus and a case of hereditary syphilis. Other symptoms are necessary, but the main point which I wish to establish is whether there is any causal relation between syphilis in the ancestors and lupus in the child.

Hebra distinguished between *Lupus vulgaris* and *Lupus serpiginosus*, and classified some cases of *Syphilis serpiginosa* under *Lupus serpiginosus*. Auspitz refers to the case of a German singer, who for ten years suffered from a spot of supposed syphilitic infiltration on the back, which when treated with mercurial plaster began to ulcerate and discharge a great deal of pus, without improvement.

* Wiener Med. Woch. 1877, and Med. Presse, 1878.

I have myself heard Professor Hebra in his lectures and clinic call cases of *Lupus serpiginosus*, *Syphilis hereditaria*, and refer to the same category cases of *Syphilis serpiginosa*, known as *Radesyge*, *Scherliervo*, etc.

Hans Hebra* refers to a case which came under his father's care, and which would be conclusive evidence that lupus stands in a causal nexus with syphilis. Professor Hebra had a certain gentleman for many years under his treatment for syphilis. This gentleman married and infected his wife. The first pregnancies ended in miscarriages. Another child was born alive, but died in a few weeks with very severe symptoms of hereditary syphilis. Still another child was born apparently healthy, but showed, in a few years, symptoms of hereditary syphilis in the skin and in the bones. The next and last child was born entirely healthy, and showed no signs of syphilis; but, when grown, an exquisite case of lupus appeared, and was treated by Hebra. Hans Hebra concludes, therefore, that some cases of lupus can, without doubt, be looked upon as hereditary syphilis, and that it is necessary to study each case in reference to its cause. This we shall do, considering the anamnesis.

Lupus which comes from hereditary syphilis has a much more rapid course and spreads itself peripherically in ulcerations, which look like *Lupus serpiginosus*. It is usually a very difficult matter to learn from patients any thing about their parents. In but two cases, which came under my own observation, was I able to learn any thing about the ancestors. A gentleman in Rome, Italy, a sculptor had a case of *Lupus serpiginosus* which began in his seventeenth year. The only point in his family history was that, owing to his mother's inability to nurse him, he was given over to a nurse, who was afterwards discovered to be syphilitic. He had never shown any symptoms of scrofula or tuberculosis, and until his seventeenth year nothing had ever appeared upon his body. When he came under my charge he was in

* Die Krankhaften Veränderungen der Haut, 1884, p. 446.

his twenty-second year. The lupus had affected the right cheek and had spread over the neck and the ear; the lobe of the ear had been destroyed and the tubercles had penetrated deep into the auditory meatus. Otherwise he was of strong constitution and very good health.

I produced a complete cure in the case in the course of four or five months by the use locally of Empl. Hydrarg., and internally of Decoctio Zittmanni. Some of the tubercles which resisted the plaster I scraped away with a sharp scoop, and then cauterized the remaining ulceration with nitrate of silver. He never had any recurrence of the disease.

In another case, which I reported fully to the Academy of Medicine of Cincinnati in June 1883, and which was published in the *Lancet and Clinic*, Lupus serpiginosus had affected both cheeks of a gentleman, aged forty, for ten years. The treatment was the same as that of the last-mentioned case, and the result was a complete cure. The patient had always had good health otherwise, and no trace of syphilis or any other constitutional disease could be found in his system. Syphilis, however, in his ancestors could not be excluded. Erasmus Wilson (on the Diseases of the Skin, London, 1863) looks upon hereditary syphilis as the cause of this disease. Veiel found, in fifty-seven cases of lupus, eleven in which syphilis existed in the parents, and five in which the patient had been cured of syphilis himself.

I conclude, therefore, that hereditary syphilis is the ordinary cause of Lupus serpiginosus; it may be that the other forms of Lupus vulgaris recognize their origin in a syphilitic taint in the ancestors, especially when other causes, like serofulosis or tuberculosis, are not present.

SCROFULA—SCROFULOSIS.

Scrofula is also considered as a hereditary disease, and certainly plays a very important rôle, having all the characters of a diathetic disease, showing itself under different

forms and attacking the organism with symptoms which always have the same characteristics.

The word *scrofula* comes from *scrofa*, meaning a young pig, and was applied, in all probability, because of the spreading of the lower part of the face from the swollen submaxillary glands, and the resulting pig-face. The writings of Cullen, Kortman, and Hufeland, however, have caused the word *scrofula* to mean a peculiar dyscrasia, which is also known, especially by the English physicians since the time of Celsus, as the strumous diathesis.

Celsus described this disease accurately as consisting of a general but painless swelling of the glands, due to a weak and poor constitution. There is, in this disease, some alteration of the lymphatic system, owing, perhaps, to a change in the vessels, glands, or the composition of the lymph itself. The lymphatic constitution, as described by the French physicians, must not be confounded with the *scrofula* of the Germans or the *struma* of the English.

The best definition of *scrofula* was given by Virchow and Billroth. According to these writers, a *scrofulous* diathesis exists where, in any part of the body, a chronic inflammatory process is developed as the result of a slight or transient irritation; an inflammatory process which not only lasts after the irritation has passed away, but which tends to spread and to end either in suppuration or caseous degeneration. It easily results in *hyperplasia*. The chronic swelling, inflammation, suppuration, and caseous degeneration usually begin in the lymphatic glands, and then pass to the subcutaneous tissue, bones, joint, and mesenteric glands, resulting in amyloid degenerations of the liver, spleen, and kidneys, in leucæmia and albuminuria. These changes give to the individual a peculiar appearance, which is characteristic of the disease.

Although the external surface of the body in *scrofulous* individuals is very often affected by disease, still there are very few diseases of the skin which are produced by *scrofula*.

The eczema, so often found in scrofulous people, has nothing to do with dyscrasia, but is only the result of the tenderness in and the structure of the skin. We do not now speak, as was the case in former years, of a *materia peccans* in the blood finding its expression in the skin or mucous membranes, but that these parts in scrofulous subjects are liable to chronic inflammatory affection from insignificant stimuli.

Professor Neumann demonstrated, by means of injections of mercury into the corium and panniculus adiposus, that the lymphatic system in these individuals was much more developed than in others, and that the skin, although very thick, was not well nourished and consequently was more liable to eczema. Parasites also find a much better nidus in the skin of such individuals because of this condition. Hence the *Microsporon furfur* of Pityriasis versicolor, or Tinea versicolor, is very frequently found in scrofulous or tubercular subjects.

Owing to a hypersecretion of fat in scrofulosis, children with this disease are subject to *Seborrhœa capillitii*, or Crusta lactea. This very often produces an eczema of the scalp or face, because of the presence of an irritating fatty secretion. A superstition exists amongst certain classes that this fatty secretion is healthy, and must not be disturbed; hence it is allowed to remain and to collect sweat, dust, saline substances, and extraneous matters from the air. The result is a hard crust, offensive and irritating to the skin, and consequently an eczema, which, when once begun, tends to spread over the head, face, ears, and neck, and even further. The offensive secretion is partly reabsorbed by the lymphatic vessels, reaches the lymphatic glands of the neck, and thus produces *Adenitis cervicalis* and suppuration.

There are, however, skin diseases which may be properly attributed to scrofula. They are *Lichen scrofulosorum*, *Acne cachecticorum*, and *Scrofuloderma tubero-ulcerosum*, but as all these diseases may be due to either inherited or acquired scrofula, I refer the reader to the chapter upon the influence of diathetic diseases upon the skin.

II. HEREDITARY DISTURBANCES OF THE NERVES AS A CAUSE OF SKIN DISEASES.

A great many diseases of the skin are produced as the result of disturbance from the nerves which control the circulation of the blood. Professor Auspitz deserved a great deal of credit for his work upon this subject. He, in his new classification, grouped in one class many dermatoses produced by anomalies in the vasomotor nerves.

In this article, however, we shall only consider those diseases of the skin which are transmitted to children in the form of exaggerated sensitiveness of the skin, or in the form of a trophic disturbance of the skin from an altered condition of the nerves presiding over its nutrition.

Parents who have a very delicate and sensitive skin transmit a similar condition to their children, and thus render the latter liable to skin eruptions from very slight causes. These eruptions usually take the form of an urticaria, erythema, or similar trouble.

This sensitiveness of the skin can not be looked upon as a true disease, but it is one of the most prolific causes in producing pathological alterations from slight irritations. For instance, a person who possesses such a skin would be liable to an urticaria after taking a steam-bath, while those who had not this peculiar condition would not be at all affected thereby. This nervous sensitiveness upon the part of the skin is a persistent affliction, and remains during life.

Urticaria results from an irritation of the vasomotor nerves. This irritation produces a constriction of the capillaries at some points of the skin, and other capillaries become enlarged by hydraulic compensation. This dilatation permits the transudation of the serum of the blood into the meshes of the derma and the epidermis; hence there is swelling, which becomes limited only by the points of constriction in the capillaries, as above mentioned.

This constriction produces an anæmic area around the swelling. When the cause is transient, the disease follows a very acute course, and quickly ends in recovery; but when the cause is persistent, or when repeated changes in the tonicity of the blood-vessels take place, the urticaria becomes chronic. Usually an intense itching accompanies urticaria, especially when it is chronic, a fact which shows the intimate connection between the sensitive and the vasomotor nerves. There is a marked tendency to relapse in this disease, as will be readily understood when the ultimate cause is remembered.

The irritation need not necessarily be objective—*i. e.*, physical or chemical—but may be subjective. Persons who have this peculiar sensitiveness of the skin are very liable to the occurrence of large wheals upon the surface of the body, from mental trouble. Auspitz refers to cases of asthma, in which each attack was followed by an urticarial eruption.

PRURIGO.

There is evidently some affinity between urticaria and *prurigo*, because they begin alike, and in both there is some disturbance in the sensitiveness of the skin. When the old ideas of “something wrong with the blood” began to disappear from the pathology of skin diseases, and gave place to the modern positivism, Cazenave explained the genesis of *prurigo* as an affection of the nervous system, which gave rise to a hyperæsthesia; this hyperæsthesia caused the itching, and this produced the subsequent papules. This explanation, however, is not in accord with the phenomena of the disease, because if the itching and consequent scratching were the real cause of the papules, the perverted tactile sensation would come first, and the eruption afterwards; whereas, in reality, the contrary takes place—the itching sensations and the eruption appear simultaneously, and when treatment is successful the itching and the eruption disappear together. This certainly shows that the eruption is the

cause of the perverted sensibility. This is also a valuable point in the differential diagnosis between prurigo and *pruritus*.

I can not altogether accept Auspitz's idea, when he tries to maintain that prurigo is due to a neurosis of the sensitive nerves of the skin, because in this disease there is evidently an alteration in the vasomotor nerves, and consequently a disturbance of nutrition, as was demonstrated by the anatomico-pathological researches of Neumann in this subject. Neumann found accumulations of cells in the papillary layer and transudations of serum; the rete Malpighii is hypertrophic, and the cells are abundantly supplied with pigment; the papillæ are enlarged and the connective tissue of the corium is thickened; the walls of the blood-vessels are surrounded by cells, the hair follicles are changed in shape, becoming club-shaped (*Kolbenförmig*), and the muscular fibres are hypertrophied.

There is, however, nothing characteristic of prurigo in these changes, because in chronic eczema there are the same cellular infiltration and the same changes in the hair follicles (Derby and Gay); in the ichthyosis in Elephantiasis Arabum there are the same changes in the sebaceous glands, and in Lichen ruber there is the same hypertrophic condition of the muscular fibres.

Hence, I say, I can not agree with Auspitz, but must hold that the disturbances of the vasomotor nerves cause the cellular infiltration into the papillary layer; this infiltration is an irritant to the terminal filament of the sensitive nerve fibres, and hence there ensue the terrible itching sensations and the contractions of the erector pili muscles; the scratching continues the irritation and increases the alteration of the skin.

Prurigo is never congenital, but commences in the very first years of life as large urticarial wheals upon the body, and especially upon the legs. This eruption comes and goes; or it may appear in the form of *Lichen urticatus* upon arms and legs, disappearing and reappearing, until finally

the symptoms of *Prurigo mitis* show themselves. These symptoms become more persistent and intense as years pass.

The ætiology of prurigo is still unknown. The old-time doctors had no difficulty in explaining its origin in some bad humor of the blood, bile, pituita, or urine, and some modern investigators are content with attributing the disease to tuberculosis and scrofulosis. It is a fact, however, that although prurigo is found sometimes in children whose parents had tuberculosis, and sometimes in children who have the so-called serofulous diathesis, still it is also found in children in otherwise perfect health and whose parents are healthy and strong.

Prurigo was also ascribed to imperfect nutrition and bad hygiene, and it is true that the disease is very frequently met with in hospitals amongst the poorer classes of people; but it is also found in children of the better classes, in whom there is no lack of good food, and whose hygienic surroundings are of the best.

Although we do not know the essential cause of this disease, the reasons for the symptoms can be given. The papules are the result of the exudation, and this, by irritating the sensitive nerve-fibres of the papillary layer, produces the itching. To understand the cause of the exudation, which until recently had never been explained, we must remember that prurigo is not transmitted from parents to children as prurigo, but as a peculiar tenderness of and liability to irritation in the skin, and that, as a result thereof, slight irritations produce a disturbance in the tonus of the vasomotor nerves. This vasomotorie disturbance, although evanescent at first, becomes chronic after a time, and results in a stasis in the blood-vessels, with consequent exudation. The further steps in the progress of the disease have already been explained.

Prurigo should not be considered as a simple neurosis of the skin, but as a deep-seated and permanent disturbance of the vasomotor nerves.

ANOMALIES OF THE PIGMENT OF THE SKIN.

Many children bring into the world various anomalies in the pigment of the skin. Many others acquire these anomalies during life.

In speaking of the anatomy of the skin, it was stated that the pigment differs in quantity according to the race, and was contained in the rete Malpighii.

The anomalies above referred to are due to a certain condition of the trophic nerves, which condition produces either an atrophy or a hypertrophy of the Malpighian layer, and hence the different discolorations. Even the ancient physicians noticed these discolorations or pigment spots, and described them under the name ἐφῆλδες, *eloasmata*, *melasmata*, etc. We shall, however, limit the present section to a consideration of those forms of discoloration which are congenital, and which are known as *nævi*, or moles. These pigment spots are known as *Nævi pigmentarii*, and consist of discolorations covering a greater or less extent of surface of the skin. They follow the disposition of a zoster, and are to be found upon one-half of the thorax, one arm, or other surface. From their distribution it can readily be seen that they follow the course of some nerve or nerve plexus. The color varies from yellow to brown, dark brown, and black. In form they are diversified; sometimes occurring in large spots, at other times in stripes, and again in round spots of varying size. In one case which I saw the pigmentation began at the spine, in the neck, and spread down the arm, following the course of the brachial and radial nerves to the hand itself.

These anomalies in the distribution of the pigment are due to neuritis, either peripheric or central, which arose during intrauterine life. This assertion finds support in the analogy which exists between these congenital anomalies and many of those found in the adult. Bulkely, for instance has reported a case of *vitiligo* or *Albinismus partialis*, found in

connection with a case of locomotor ataxia. Bärensprung and Th. Simon have also noted cases of discolorations which were known to be the result of disturbance in the nerves.

The deposit of pigment is, like all other elements, supplied from the blood, under the control of the vasomotor nerves, and any disturbance of these nerves may be followed by an altered nutrition and an irregular deposit of coloring matter.

ICHTHYOSIS.

Every medical student knows the history of Edward Lambert, as given by John Machin. Lambert was born in Ireland in 1710, and was the father of an ichthyotic family. Two of his sons, who were afflicted with *ichthyosis*, traveled a good deal throughout Europe, and exhibited themselves for money. They were described by Tylesius and Lorry under the name of *Stachelschweinmenschen*, or porcupine men. Ichthyosis is the name used to designate that morbid condition of the skin in which the epidermis is produced in enormous masses, strongly adherent to the underlying tissues, and showing the concentric lines of the cuticle greatly exaggerated. These masses of epidermis sometimes look like parchment adhering to the skin, and at other times appear as brownish or darkish crusts. In the earlier stages of the disease, or when it is in process of recovery, the epidermis forms scales like parchment, which were called by Alibert *Ichthyosis nacrée*; after a time, however, the epidermis increases in quantity, the color becomes of a brownish or greenish tint, and the name *Ichthyosis serpentaria* is applied to it; at other times the epidermis becomes so thick as to resemble horns, and then the disease becomes *Ichthyosis cornea*. I saw in Cincinnati such a case, in which these horny excrescences almost entirely covered the fingers and the toes.

Ichthyosis is considered by many authorities to be congenital, but observation has shown that it rarely appears

until after the second year of life. Cases in which the skin is hard and fragile, resembling the skin of a baked apple, and which have been described as *Ichthyosis congenita*, are simply cases of *Seborrhœa sicca*. Sometimes the disease begins in small scales like those of pityriasis, and is known then as *Ichthyosis nitida*; at other times as warty excrescences upon one or the other side of the body, and then it is known as *Ichthyosis istrix*. I saw two cases of the latter form in two boys of eight and ten years respectively, in whom these warty growths were of a brownish-green color, and the eruption followed the course of the nerves beneath the skin. In another case—a boy whom I saw in consultation with Dr. Hyndman, of this city—the eruption followed exactly the course of the lumbo-sacral plexus of nerves, and followed the course of the ischiatic nerve down the leg to the foot.

The cause of ichthyosis is to be found in a perverted nutrition of the epidermis, which, on account of an exuberance of the nutritive supply is accumulated more rapidly than it is washed away, thus producing the horny masses.

The disease belongs to the class *Keratosen* or *Epidermidosen*. It was formerly held that the most important pathologic alteration in this disease consisted of a hypertrophy of the papillary layer of the skin, a view which is not now maintained by the more recent authorities. Esoff describes ichthyosis as an increased proliferation of the epithelial cells, together with a tendency to become hard and horny, this being the primary change, the alterations in the papillary layer being only secondary and the result of the irritation produced by the epidermic hypertrophy. In proof of this, it need only be stated that in the very earliest stages of the disease the first alterations consist of an increase of the horny layer, a fatty degeneration of the epidermic cells, and an abundant admixture of pigment, while the papillary layer is simply slightly flattened, but is otherwise normal. In the more marked degrees of the disease the papillæ are elongated,

a condition which may occur in any skin disease in which there is pressure upon the papillary layer.

The horny epidermis grows downwards into the spaces between the papillæ, causing pressure to be made upon them, so that they grow towards the surface. This fact is in accordance with the alterations of the sebaceous and of the sudoriferous glands, which are found elongated, smaller, and sometimes converted in cistis by the pressure of the epidermic masses accumulated on them.

The above-mentioned alterations form a conclusive proof that the cause of this disease must be a perverted nutrition in the epidermic cells, and that this perverted nutrition must come from some changes in the nerves which preside over nutrition. That the first changes in this disease come from a nerve disturbance is further demonstrated by the fact that the distribution of ichthyosis follows the ramifications of some nerve, and again by the fact that in the case already referred to, in which the fingers and toes were covered by horny excrescences, the patient began by suffering with acute neuralgic pains in the extremities, and the appearance of each new ichthyotic spot was preceded by these pains.

In conclusion, we assert that ichthyosis is either a hereditary or an acquired disease ; that it is the result of some disturbance in the nerves which preside over nutrition—the vasomotors ; and that the epidermic changes are due to this vasomotor disturbance.

III. HEREDITARY DISTURBANCES OF THE SKIN FROM A MORBID DISPOSITION UPON THE PART OF CELLS OF THE TISSUE.

It will be apparent to every one who has read the preceding chapters, that disease is not always transmitted from parent to child, as disease, but rather as a disposition to disease, and that this disposition results in the particular disease only after years have elapsed and irritation and morbid causes have been frequently repeated.

In the present chapter we shall speak of those hereditary diseases, in which the *causa proxima* is a quantitative alteration in the histological elements of the tissues, with a resulting anomaly in the growth of these tissues. This classification will include all the new-growths.

Simple hypertrophy, or an increased number of cells, does not constitute disease, unless these new cells produce some change by their presence in the tissue in which they exist; consequently a new-growth consists of an infiltration into the tissues of the skin of new cells, which new cells produce an abnormal tumor.

In the diseases under discussion there exist in the histological elements of the skin a deviation from their type and a partial hypertrophy of some of the organs of the skin, without any apparent new-growth. We do not refer to hypertrophies which result from inflammatory action, as in chronic dermatitis, but to those diseases in which the slight inflammation that exists is secondary and the result of the irritating presence of the very cells which constitute the disease.

It is not possible to divide these diseases upon an anatomical basis, and speak of them as affections of the epidermis, papillary layer, glands, or connective tissue, because they do not limit themselves to one kind of tissue, but attack one or more parts at once, or pass from one to the other.

PSORIASIS.

Psoriasis is that inherited disease of the skin which is the result of a peculiar disposition upon the part of the epidermis and the Malpighian layer to form scaly or flaky masses upon the surface.

It is hereditary, and may appear in several members of the same family at the same time. I have, at this time, under treatment two brothers afflicted with psoriasis. The elder brother noticed the disease first during the twentieth year of his age, as spots upon his elbows and knees. The other saw the first eruption upon himself during the

twenty-fourth year of his age. Both remembered that their father had had a similar eruption.

Although a number of authorities deny that heredity has any thing to do in the production of this disease, it is an incontrovertible fact that the disease is hereditary in certain families. Professor F. Hebra, who had such great experience in skin diseases, considers heredity the most important factor in the production of the disease, because he found in some families many members who had the disease. Usually the disease does not attack all the members of a family, but only some of them, and may, like other hereditary diseases, leave one generation entirely free to appear again in the next, or to affect some collateral branch of the family. Although cases of psoriasis have been noticed in infants, it usually appears later in life.

As mentioned in the beginning of this section, psoriasis is not inherited as psoriasis, but as a disposition to its peculiar pathological changes.

The pathologico-anatomical alterations in this disease, as found by Neumann and Wertheim, consist in a marked development of the mucous layer, a hypertrophy of the papillæ, and increased size in the meshes of the connective tissue which forms their stroma; the capillary network is enlarged, and the vessels are surrounded by an abundance of small cells. The cellular infiltration is much more marked in old psoriatic spots, and in these old spots a considerable deposit of pigment is also to be found.

Simon is of the opinion that the chronic hyperæmia, or inflammatory condition of the papillary layer, produces the scaliness of the epidermis. Anspitz, on the other hand, holds an entirely different view in regard to the disease. He denies that psoriasis is due to an inflammatory process, because neither fluid exudation, pus, nor ulceration has ever been found in the disease. He maintains that the only inflammatory symptoms are the redness and the stasis in the blood-vessels at the base of each spot, although he

confesses that the redness in the more recent spots is in consequence of a hyperæmiâ, inasmuch as the redness disappears when the spot is compressed by the finger, and returns when the pressure is removed. He says, further, that this hyperæmic redness is produced by a venous stasis, and this is the reason that bleeding results when the scales are removed.

It is very apparent that when Auspitz admits that hyperæmia exists he admits also the inflammatory nature of psoriasis, as maintained by Hebra, Neumann, Wertheim, and Simon. It is also apparent that the hyperæmia causes a stasis in the blood-vessels, and this causes an œdema and cellular infiltration of the connective tissue.

By scratching the crust away, we find at the bottom of the psoriatic patch the Malpighian layer, naked and red, and, by the aid of a magnifying glass, small bleeding points are seen, which points are the papillæ, and not the blood-vessels.

Dr. Lang, in an essay which appeared in the *Vierteljahres Schrift, für Dermatologie*, maintained that the cause of psoriasis was a particular parasite. He supported his theory chiefly from the clinical characters of the disease. It appears in circles, healed up in the center, and spreading at the periphery. When the edges of two spots or circles meet, the margins come together and leave but one spot—a fact which Lang explains as resulting from the abandonment by the parasite of that particular part, because the nutrition has been exhausted. Furthermore, he would find support to his opinion in the fact that the mucous membranes are not affected from psoriasis, and that the nails are often attacked, as these epidermic productions offer good ground for the development of parasites, onychomycosis.

These views, however, were not accepted, because the disease has never been reproduced by contact with one affected with it; inoculation has never produced the disease in one not subject to it by heredity; and, finally, because the difficulty of cure and the obstinacy in relapse point to a hereditary origin.

It is a remarkable fact in psoriasis, that those parts of the skin which are most subject to irritation are the most liable to eruption. For instance, when cantharides are applied to a skin which has a tendency to this disease, the psoriatic eruption will appear where the blistering occurred. The disease can not, however, be produced artificially, as was asserted by Neumann and Watzdorf, nor do I mean to say that irritants may cause the disease, because it is well known that in the treatment, stiff brushes are used to remove the scales, without any increase in the severity of the symptoms.

In this affection internal remedies have not much influence, with the exception of the arsenical preparations continued for a certain length of time. In a psoriatic subject under the influence of the arsenic, we see the quantity of the scales and the underlying hyperæmic redness of the spot slowly disappear. The result is not perceptible in the first two or three weeks, but after seven or eight the scales have about disappeared, the spot is equal to the level of the normal skin, and only a brownish pigmentation remains in its place. Arsenic can be administered in any form. As in Fowler's solution of arseniate of potash (*Liquor Fowleri*), we begin with three drops a day in some water; and increasing the dose one drop every five days, we can easily reach the dose of forty drops a day without any systemic trouble. In the same way we can make use of the Asiatic pills. Lipp refers to the treatment with *Liquor Fowleri* by subcutaneous injections, which produced more speedy results.

Arsenic has no influence in preventing a relapse, so that an external treatment has the same value and produces a more speedy result than internal medication. Every body is aware that, in order to produce some effect on the diseased skin, it is necessary to remove the heap of scales which prevent the contact of the remedy with the skin beneath. Therefore, any means capable of macerating or dissolving the epidermis is useful for that purpose. Baths continued

for several hours in a bath-tub, or swathing the patient in a wet cloth, wrapped up in a woollen blanket, produces the softening of the epidermic scales. The application of soft-soap, dissolving chemically the epidermis, helps the maceration and speedily removes the scales. After the scales have been removed, oils, fat, or ointments of any kind are applied to prevent the formation of new scales; but when the fat or the ointment is combined with a remedy in form of a salve, we have the beneficial influence of the remedy on the diseased strata of the skin. For this purpose we can use the different ointments of lead, as *Unguentum Diachylon*; of zinc, as *Unguentum Wilson*, *Magisterium Bismuth*, etc. Tar preparations are also used with good result. Tar mixed with cod-fish-oil makes a soft preparation, which is easily spread upon the skin; or we may employ its substitutes, as *Oleum Cadinum*, *Oleum Fagi*, *Tinctura Rusci*, which, rubbed on the skin, are kept on with a woolly clothing. When tar preparations are used, it is necessary to watch the acne resulting from its use. When acne appears, its application must be discontinued. Carbolic acid can also be applied as a substitute for tar, but if used extensively a carbolic poisoning may result. This can be prevented by the daily inspection of the urine of the patient. If it presents a green color, it shows the first symptom of this poisoning, and the use of carbolic acid must be left off at once.

About ten years ago chrysorobin was introduced into medical practice under the name of chrysophanic acid. This was considered by the English dermatologists as a sovereign remedy for psoriasis. Balmanno Squire, in London, was the first in Europe who applied chrysophanic acid for psoriasis. He tells that a gentleman who remained for a long time in China called upon him to be treated for psoriasis. He used all the different remedies, but without any satisfactory result. Then the gentleman told him that in China he was very easily relieved of psoriasis by using a yellow powder, known as Goa powder, and he imported it

from China. The application of this powder gave such satisfactory result that Squire was encouraged to proceed in its application.

The Goa powder was used for a long time in India as a secret in cases of *Tinea tonsurans* and in several cases of parasitic affections of the skin, but was after a while forgotten. The powder is obtained by bruising the wood of several trees, called araraba or araribe—an Indian word, which means yellow color—and this powder was used in the tinctorial art. The trees, of a large size, grow in the equatorial zone, especially in the woods of Bahia in Brazil. The powder has an irritating quality, so that the men employed to bruise the wood are obliged to cover their faces to protect their eyes and mouth. From Brazil this powder was imported to Goa, a Portuguese colony on the west coast of Hindustan, when Brazil was still under the control of Portugal. In the peninsula of Malaga it became known by the name of Poh de Bahia, and in a short time was introduced into Cochin China and into China, as a remedy for *Tinea tonsurans*.

The chrysophanic acid, now better named chrysorobina, is contained in the Goa powder in the proportion of eighty per cent. Chrysorobin is used as a salve from ten to thirty per cent in lard. Before the application of the salve, it is better to remove the scales, rubbing the surface with a stiff brush dipped in soft-soap, and washing away the epidermis.

Chrysorobin, as applied, stains the skin, and the hairs, especially gray, take a yellow color. The patient does not complain of a burning sensation immediately after the application, but according to the tenderness of the skin an erythematous inflammation arises. The skin surrounding the psoriatic spot swells, grows red and inflamed, and it is remarkable that the psoriatic spot is not much affected. The color of the edges of the spot is much more intense, and is clearer in the center. When the application of this salve is stopped, the artificial inflammation quickly subsides. The psoriatic plaques are no more elevated over the level of the

skin, and an abundant lamellar desquamation takes place, and disappear entirely.

Since the first experiments with chrysorobin, it was remarked that the subsequent artificial inflammation sometimes did not remain limited to the place, but assumed larger proportions as a diffused dermatitis, with formation of vesicles and blebs, accompanied with general reaction. I remember a case of psoriasis of the scalp where I applied chrysorobin, which, after the second application, produced an erythema of the face, with œdema of the eyelids. This inconvenient affection caused the application of this substance to be made rarely, and to-day chrysorobin is not often applied, in order not to subject the patient to this artificial inflammation.

The formula under which chrysorobin can be applied is the following:

R. Unguent simpl.,	40.00
Liquef. et misc. exact.	
Chrysorobin,	10.00
Bergamot,	gutt. 10
This is applied twice a day.	

Jarisch introduced in the practice the pyrogallie acid, which in its chemical constitution is very like to chrysorobin. Pyrogallie acid has this advantage over chrysorobin, that the consequent irritation of the skin is milder and more limited, and with some care can also be entirely avoided. It can be used in a solution of one per cent for bathing, or in a salve from five to ten per cent. The ointment can be rubbed on the psoriatic plaques, covering afterwards with a flannel bandage, or can be spread on a piece of cloth and left on the locality. When used in the latter way it acts with energy, and it is necessary to have a salve no stronger than five per cent, so as to avoid the formation of blisters.

The spots of psoriasis—which, when treated with chrysorobin, remain white, and the surrounding healthy skin becomes purple red—when treated with pyrogallie acid are colored intensely brown, and the surrounding healthy skin is

unchanged. It is remarkable that the color shows different shades according to the region on which it is applied; thus, in the face, the psoriatic spots appear slightly brown, but on the extremities they appear dark and intensely colored.

The psoriatic plaques, under the pyrogallic acid medication, sometimes without any perceptible change, become flat and disappear; at other times the plaque is covered with superficial excoriations, accompanied with a burning sensation.

In the application of the pyrogallic acid it is necessary to be careful and recollect that it is a poisonous substance, which, applied by hypodermic injections in rabbits, produces death of the animals. The poisonous action of pyrogallic acid is displayed on the corpuscles of the blood, which are destroyed by its action. Four cases of poisoning have been referred to from Neisser* and from Vidal.† Two of these cases had a fatal end, and two recovered through an active derivation on the kidneys and inhalations of oxygen.

This is a warning to make us aware of the danger in the use of pyrogallic acid, which we will avoid when the surface is too extended. The urine of the patient must be daily inspected, and as soon as this shows a dark-brown color, it is necessary to stop the use of the pyrogallie acid.

Salicylic acid has been also used, mixed with India-rubber or gutta-percha. Pieces of rubber so prepared are applied on the psoriatic spots, and the result has been a very satisfactory one. The patient is not annoyed by strong odor; the application is easy, and after a few applications the scales are easily removed.

CARCINOMA.

Carcinoma has always been considered as an inheritable disease; not that the disease itself is directly transmitted, but that there is a tendency or disposition in the cells themselves to take on the diseased condition.

* *Zeitschrift für Klin. Medicin.* Bd. I, No. 1.

† E. Besnier: *Ann. de Dermatologie et Syphilis.* 1882.

Bayle and Cayol mention a family in which five members had cancer. A lady who had epithelioma of the face had a son with cancer of the stomach. Napoleon the First died, as did his father, from cancer of the stomach. Piorry and Velpeau refer to cases of cancer, in which the heredity was pronounced. In a hospital of Rome I saw a boy admitted to the institution for cancer of the face, and he died from marasmus. Two years after, his brother was also admitted, and his face presented warty growths, some of which had an epitheliomatous character.

In these diseases, we are dealing with new-growths which result from the epithelial structures, not those which arise from the connective-tissue corpuscles. I shall not enter upon a discussion of the papillomata of the cauliflower productions, but shall limit myself to a consideration of those epithelial productions which are so frequently met with in dermatological practice, and shall retain the old name, Epithelioma, as first given by Hannover.

These tumors are malignant in character, and present an alveolar stroma, filled with epithelial cells. The observations of Professor Thierseh show that pathological growths follow the same rules as govern the physiological structures; and hence these tumors, being epithelial, come from epithelium, and are consequently derived from the external layer of the blastoderma. The connective tissue corpuscles are, in the opinion of Virchow, not altogether inactive in the production of carcinoma, but form the stroma of the new-growth.

Billroth holds that only those productions which result from epithelium are to be considered as carcinomata, but that the connective-tissue corpuscles may proliferate and infiltrate the new-growth.

O. Weber and Klebs maintain that the connective tissue has an influence in the production of cancer. According to the investigations of Köster and Birch-Hirschfeld, the epithelium which forms the endothelial layer of the lymphatic

vessels and of the serous membranes, takes an active part in the production of epithelioma.

The malignant character of these growths consists in the enormous proliferation of cells, the infiltration into the surrounding tissues, the proclivity in the proliferated cells to decay, and thus produce ulceration and destruction. The first appearance of the carcinoma on the skin is in form of a small, superficial prominence, covered with a thin, flat epidermis, resembling a small vesicle. Slowly other small prominences of the same kind grow close to the first in its periphery, while the first decays and appears depressed. This process at first is so slow that sometimes, only after some years, can be seen a difference in the size of the tumor. But after a while the growth augments rapidly; the epidermis covering the prominence appears scaly, showing an excoriated center. A small quantity of fluid oozes, and covers the surface with yellowish or brownish crusts. In this way other nodules of the same kind aggregate themselves to the primitive with the same results, and the surface begins to show ulcerations. The ulcerations are not deep, affecting only the superficial layers of the skin. The edges are neatly cut in the surrounding healthy skin, slightly elevated, and more or less hardened and infiltrated. Some of the ulcerations sometimes heal up, leaving a scar, upon which new epitheliomatous nodules are developed.

Epithelioma can remain for several years without producing remarkable alterations on the locality, or on the general system, while at other times it spreads itself largely in surface, producing a large epitheliomatous sore, with a papillomatous appearance; finally carcinomatous productions appear in the internal organs, causing the death of the individual so affected. Epithelioma of the skin attacks, preferably, the nose, the cheeks, the lips, the eyelids, but rarely affects the auricle.

It is remarkable that in every case the sebaceous glands are very active in their functions, and epithelioma is accom-

panied with a kind of seborrhœa. According to Rindfleisch, the sebaceous and the sweat glands take an interesting rôle in the production of the neoplasy; they lose their glandular structure, and appear only as hard accumulations of epidermis, which we recognize under the epidermic surface. Up to the present time we have not very clearly discovered the origin of the epidermic cells that enter into the connective tissue, which, according to Billroth and Tiersch, would be produced from the division of the pre-existing epithelial cells. The opinion of Köster, on the contrary, is that the growth of the elements may be caused by a metamorphosis of the endothelium of the lymphatic vessels, from which the epithelial accumulations spread themselves into the meshes of the tissue. The spaces between the epithelial accumulations and the connective tissues are completely filled with small, brown-colored elements.

By the multiplication of the cells there occurs a pressure in the interior of the neoplasy, on account of the want of space. The pressure acts on the interstitial blood-vessels, which, by consequence, results in a diminution of the circulation and disturbance of the nutrition, and causes the regressive metamorphosis. The connective tissue, which forms so important a part in the structure of the skin, is disarranged and irritated from the new-growing elements; an inflammatory process results, and causes a papillomatous appearance of these new-growths.

Carcinoma of the skin is sometimes idiopathic and sometimes consecutive to carcinoma in other organs.

The epithelioma of Hannover or the cancrioid of Lebert is the idiopathic carcinoma of the skin. It sometimes remains limited in the superficial parts of the skin as in *Ulcus rodens*; at other times is much deeper, and rises above the level of the skin as a papillomatous growth.

The causes of carcinoma of the skin, as usually given, are: First, age—as it usually appears after the fortieth year, although it has been seen at thirty and twenty. Second,

small warts or moles (*nævi*). These, however, should only be considered the starting-points of the disease. Often an individual who has a wart or a mole upon his face notices that it is dryer or harder than usual. He scratches it off, and then finds that it grows again; but this time it is larger than before. So, by degrees, the base of the growth becomes infiltrated, and finally it develops into an epithelial cancer.

At other times an old person has upon the face a sebaceous wart, which has the appearance of grayish or dirty yellowish lentils; this is scratched, and leaves an excoriated, bleeding surface, which, after some years, may show the characteristics of an epithelial growth.

The cause of the cancer in these cases is the irritation from scratching; in other cases the irritation comes from shaving, or the excessive smoking of tobacco. But these irritations are not sufficient to account altogether for the development of the cancer, else all persons who may be subject to them would suffer from the disease. There must be a more potent cause, and that is found in heredity or a hereditary predisposition. Given, then, the predisposition, the local irritation produces the disease because of the tendency upon the part of the epithelial cells to proliferation and infiltration.

In regard to the treatment of the question, what more interests the hygienist is the opportunity of the treatment in reference to the possible relapse. In case of epithelioma the relapse is worse than the first appearance of the neoplasmy; therefore, it is a matter of great responsibility for the physician to touch at first this affection. When we undertake to treat an epithelioma, we must be sure to destroy the affected tissues entirely. Superficial caustics are not to be used, as they irritate the neoplasmy and very often are a disadvantage. The caustics which can be used are the *Pasta Caustica Viennensis* and the caustic paste of Landolfi. The Vienna paste must be readily prepared and applied by

the physician himself, waiting for its result. The formula of Pasta Viennensis is as follows :

R. Kali caust. pulv. sicciss.,	5.0
Calcar. caust. pulv. sicciss.,	5.0
Alcoholis absolut.,	10.0

The powder is mixed with the alcohol, and the paste is applied on the affected part, protecting the normal skin with a piece of sticking-plaster. In twenty minutes the tissue covered with the paste is converted into a brown eschara. The paste is removed and washed away with a large quantity of water.

The paste of Landolfi is prepared with equal parts of chloride of zinc, Butyr. Antimonii, and muriatic acid, adding powder of lycopodium sufficient to obtain a consistent paste. This is rubbed on a piece of cloth, and applied on the neoplasy, protecting the healthy skin with a piece of sticking-plaster as for the Vienna paste. The action of the Landolfi's paste is milder than the other; it can remain on the place about twelve hours, and the cauterized tissue is converted to a yellow-greenish eschara.

In other cases a surgical operation is preferable. The neoplasy can be removed with the knife, and the edges of the skin united again; or, in case of defect of the skin, a plastic operation can be performed, to prevent disfiguring scars. A superficial epithelioma, in its beginning, can be very easily scraped off by means of the sharp scoop. The subsequent sore is then cauterized with perchloride of iron, or with nitrate of silver, and the resulting scar is scarcely noticeable.

CHAPTER V

THE DIATHESSES.

SKIN DISEASES OF DIATHETIC ORIGIN.

THE term *Diathesis* is derived from the Greek word *διαθέσις* (disposition), and signifies a morbid constitution, by which such alterations of the fluids (blood and lymph) of the body are produced as to bring about at different times various changes in the tissues and organs. It is a latent general affection, hereditary or acquired, which modifies the nutrition so as to produce the phenomena of disease. If an individual has acquired syphilis, and has had, from time to time, the symptoms of the disease, his offspring will also, from time to time, show such changes in the various tissues and organs as he has shown; that is to say, this offspring has the syphilitic diathesis or disposition.

A great deal of doubt and uncertainty was thrown about this word *Diathesis* a few years since, especially in regard to skin diseases. It was considered to be a *materia peccans* in the organism, a poisoning of the blood; and when no other diathesis could be detected, a new one was invented under the name of *Herpetismus*, herpetic diathesis; in other words, to explain the unknown pathology of a skin disease by something which was itself unknown.

SCROFULOUS DIATHESIS.

Scrofula, tuberculosis, and rachitis have frequently been grouped together as causes of skin diseases, in such way as to imply that some relationship exists between them. Many skin diseases which are found in scrofulous individuals are found also in tubercular and rachitic persons, and it is an interesting question whether or not some relation-

ship does exist. Lebert* and Villemin† maintain that scrofula and tuberculosis are the expressions of different diathesis, but Bouchut refers both to a single cause, scrofula, which manifests itself in different individuals as one or the other disease. In later times great advances have been made upon this subject, and the last discoveries in tuberculosis enable us to speak with considerable certainty. Tuberculosis has for a long time been considered a specific disease, and investigators have endeavored to find the specific cause of it. During the last thirty years the investigations of Virchow upon the tuberculous nodules established the caseous degeneration of tubercle as an anatomio-pathological factor of the disease, but threw doubt upon the specific entity of it. The corpuscles of the tubercle, described by Lebert as consisting of small cells in fatty degeneration, and the large lymphatic cells of tubercular nodules as described by Langhans, were also found in other affections which have nothing to do with tuberculosis. The nodules in a state of caseous degeneration, and without blood-vessels, were then considered as a characteristic sign of tuberculosis.

Afterwards the question arose, From what did the small cells producing tubercle have their origin? Virchow expressed the opinion that their origin was from the corpuscles of the connective tissue; Klebs and Rindfleisch, from the proliferation of the endothelium of the lymphatic vessels; while Addison, Colberg, and Schüppel maintained that the origin of the tubercle was in the stroma of the tunic of the small capillary blood-vessels. Although the histological structure of the tubercle and its origin did not show any specific quality, still the experiments of Villemin demonstrated that some kind of specificity existed.

Buhl, in 1857, spoke of tuberculosis as an infectious disease, which got into the blood and found its seat in

* *Traité de maladies scrophuleuses.* Paris, 1849.

† *Etude sur la tuberculose.* Paris, 1868.

preference in the lungs, and in the other organs of the body. The virus of tuberculosis, which sometimes affects the whole system in form of *Tuberculosis miliaris acuta*, was already latent in the body in some organ, was reabsorbed in the circulation, and broke out under the form of tubercular infection. The opinion of the infectious character of tubercle was furthermore directly proved by inoculations, which led to the conclusion that there was in tuberculosis a micro-organism, which was the cause of the disease. Many authors described many forms of micrococcus as the peculiar micro-organism of tuberculosis; but the discovery of this belongs to Koch, who demonstrated the micro-organism, which he called *Bacillus tuberculosis*. This is different from all other micro-organisms of other diseases, and when introduced by inoculation produces tuberculosis. The bacilli are quiescent "little rods," smaller in length than the red corpuscles of the blood. The bacilli are constantly found in the sputa of individuals afflicted with tuberculosis. Bahe, Rosenstein, Damsch, discovered bacilli in the urine, when the patient is affected by tuberculosis of the kidney, and in the pus of an abscess in the arms of a person affected with pulmonary phthisis. Demme reports a case of *Ozaena scrofulosa infantum* where the bacilli were mixed with the purulent secretion. The child was eight months old, suffering with ozaena; no syphilis or phthisis was in the family history. Bacilli were found in the granular inflammations of the joints of scrofulous individuals who died from tubercular infection. In *Lupus vulgaris* Demme and Doutrelepon found the Bacilli tuberculosis, and considered this form of lupus as a tubercular affection of the skin. These different opinions would lead us to the conclusion that scrofula and tuberculosis are expressions of the same diathesis; but we must be very careful not to jump at conclusions.

Many authorities think that tuberculosis is a contagious disease, and all the cases are only the result of the conta-

gium, going so far as to deny the possibility of a hereditary impression. We do not go so far, but what is fact is fact. We must admit the contagiousness of tuberculosis; therefore tuberculosis may occur in the non-scrofulous as well as in the scrofulous; only the scrofulous are more liable than others to have tuberculosis, on account of their greater susceptibility to all morbid influences. The scrofulous processes produce some cachectic condition which makes the body much more liable to the development of the bacilli; and finally the products of decay resulting from scrofulous processes, when they contain the bacilli, may enter the circulation and directly produce the tuberculous dyscrasia.

We must conclude that tuberculosis and scrofula are not the same diathesis, but that there is some relationship between them in the nature of a general disposition of the system.

Affections of the skin, as we remarked in chapter iv, section 6, are found common to all these wasting affections, on account of the poor nutrition of the system. This is the reason why we very often find scrofula, tuberculosis, and rachitis, all together, mentioned as the cause of those skin eruptions. Many cases of seborrhœa, with a scaly appearance, are found in individuals affected with those diatheses, and this affection is known as *Seborrhœa tabescentium*. Individuals in such a condition are also subject to that skin eruption called *Acne progressiva* or *Acne cachecticorum*. They have swelling of the glands, caries, seborrhœa, and a cachectic appearance; their body shows nodules of acne of a livid color, without comedo in their middle, affecting in preference the skin of the lower limbs and of the trunk. Frequently the skin of these cachectic individuals is the seat of large pustules isolated one from the other, a disease which is known as *Ecthyma cachecticum*, or *Ecthyma luridum* of Willan.

In this disease small pustules appear upon the skin, grow to the size of a nickel, and are surrounded by an inflamma-

tory halo; the contents dry up gradually, and a yellow-brownish crust, which covers the whole surface of the pustule, is left. Underneath the crust a normal epidermis is produced, and then the crust falls off. Sometimes, however, no epidermis is formed, the crust is washed off by the accumulating pus, and a purulent ulcer is the result.

On the skin of those cachectic individuals fungi find a favorable ground for their development. *Microsporon furfur* is very often found in tuberculous individuals, producing those brownish spots known as *Pityriasis versicolor*, or *Tinea versicolor*.

Some eruptions are more definitely limited to scrofulous individuals such as *Lichen scrofulosorum*. Small papules, slightly reddish or yellowish, sometimes brownish, appear on the general surface of the body, disposed in groups so as to represent half-circles, and are covered very often with scales. The color is characteristically a cachectic one, and the eruption appears in preference upon the body, and seldom upon the extremities. The course of this eruption is chronic, and is constantly accompanied by marked symptoms of scrofula. Hans Hebra speaks of this peculiar form as a papular eruption of scrofula, which he calls *Scrofuloderma papulosum*.

Very frequently the skin of scrofulous individuals is the seat of ulcers, consequent upon a chronic process of infiltration. The infiltration appears in the deep layers of the skin, in the subcutaneous tissue, and in the lymphatic glands. It begins in the form of a small, flat tumor, reddish-blue in color. It gradually becomes soft, the epidermis breaks, and a scrofulous ulcer results. It is usually not painful, discharges a small quantity of thin, purulent matter, has thin edges, and unhealthy granulations cover its surface. The ulcer spreads over the surface, and the granulations frequently rise to the level of the skin. When, with appropriate treatment, the unhealthy granulations are replaced by healthy ones, the ulcer heals up, leaving a permanent scar. When the ulcer has for its base one of the lymphatic glands, abscesses and

fistulæ are formed, and, of course, big and permanent scars result, which very often disfigure the individual.

It is not necessary to say that the treatment of these affections finds its basis on all those internal remedies which are used in serofulous affections. An early administration of preparations of iron and of cod-liver oil will prevent these eruptions by improving the general system of the patient. External application of cod-liver oil is the best local means of treating *Lichen serofulosorum*. The ulcers resulting from serofulous infiltrations must be treated according to the rules of surgery, and with an appropriate internal treatment recovery is brought about.

It will seem strange to the reader after what we have said on lupus in reference to hereditary syphilis, that we mention lupus again in connection with serofula. It is our wish, however, to touch briefly the question which has been already ventilated for a long time, whether *Lupus serofulosus* does exist. We see in *Lupus vulgaris* as its principal features a granuloma developed in the anatomical structure of the skin in the form of hard, small, reddish-brown tubercles, remarkable for its persistency and the tendency of its elements in course of time to decay and produce ulcerations, or to disappear by involution, in either case leaving a scar.

We do not think that we have at present such positive differences between the granuloms as to be able to distinguish one from the other by its anatomical characters, all offering the same structure as was for years remarked by Virchow. Although the histological observations of these new-growths have reached an advanced point, there have not yet been found any peculiar anatomical features to establish an essential difference between them. The presence of the giant cells which were found in the tubercle and in lupus were also found in some forms of secondary syphilis and in new productions of connective tissue. The locular structure of the lupous productions, the origin of the young cells from the adventitia of the blood-vessels, the way

the epithelium covers these productions, could never constitute a point of distinction amongst the granuloma. The observation that lupus is found in individuals in healthy condition, can be compared with the observation of Volkmann, that also diseases of the bones and of the joints are found in healthy individuals. But in these affected bones and joints, when resection or amputation took place, the presence of tubercles was recognized. The discovery of Demme and Dutrelepont of the bacilli of the tubercle in the productions of lupus would prove once more a certain relationship of *Lupus vulgaris* with scrofulosis and tuberculosis, when the same bacilli were found also in the scrofulous affections of the joints. Therefore we do not find any objection to admit a *Lupus scrofulosus* when it is combined with a scrofulous habit.

A difficulty may arise from what we see, that while these granuloms show such strict anatomical and pathological relationship between themselves, they exhibit a difference in the clinical appearance. The most interesting point is, that the cause of the disease, which produces this kind of deposit of the dyscrasia, has a great influence on the development of the infiltration, which sometimes is more circumscribed, at other times is more diffused. The difference of the cause has a great influence also in the way of the involution and of the decay of the infiltration, which sometimes is reabsorbed; at other times it forms ulcers, with a course more or less chronic. This really is the reason why *Lupus vulgaris* in genuine cases is distinguished from syphilitic and scrofulous granuloms of the skin. We can say that lupus is the genus to which we can apply the denomination to signify the species. We do not mean to make any confusion of lupus with syphilitic or scrofulous ulcers, but we understand lupus in its strict sense of the word, consisting of hard nodules deep in the substance of the corium; and as we pointed out *Lupus serpiginosus* as a lupus caused from a syphilitic taint, we can to-day point out cases of *Lupus vulgaris* where a

scrofulous taint or a scrofulous habit can be considered as its factor.

Many cases of lupus in children have been beneficially influenced by an antiscrofulous treatment. The application of cod-liver oil on the locality and cod-liver oil internally, with some iodic preparations, have benefited these patients. In these cases we think the physician not condemnable who would give to the lupus genus the nomenclature of scrofulous.

SYPHILIS.

We have already seen that syphilis in the parents is transmitted to their offspring yet inclosed in the maternal womb, and showing itself sometimes on its coming into the world, sometimes at a later period of life. We will now consider in brief syphilis when acquired by the individual himself, in reference to the cutaneous eruptions which are produced. Every tissue of the human body is attacked by syphilis, but the skin is in preference affected from this disease. Every skin eruption is simulated by syphilis, but the syphilitic eruptions have something characteristic and peculiar in their appearance, which have caused all these eruptions to be grouped in one common class, *syphiloderma*, *syphiloides*.

The slight and scarcely perceptible spots, maculæ, of the erythematous syphilis go gradually into the informous tumors which we observe as tubercles, gummata, due always to the same virus. Their appearance on the patient is not irregular in time, and we can see them in a chronological order, so that one eruption follows the other according to the age of the infection.

The syphilitic eruption has its ground in a chronic inflammatory process, accompanied with proliferation of small cells. The first eruption, which appears eight or ten weeks after the entrance of the virus into the system is nothing else than a slight exosmosc of cells and ematoidine in the meshes of the Malpighi layer, resembling *roseola*, which we

frequently observe in other infectious diseases. In the progress of syphilis, the exosmose being more abundant, the eruption is no more so slight and superficial, but it produces an elevation on the level of the skin; hence papula. The epidermis covering the eruption decays, and consequently, after the reabsorption of the infiltration, is detached in the form of small scales. When the exosmose of the infiltrating elements increases the inflammatory process of the surrounding tissues, pus is produced, the epidermis is detached from the layers beneath and forms a sub-epidermal abscess, or a real pustula.

Here it is necessary to point out that the first eruptions of syphilis affect the whole surface of the skin; but when syphilis becomes older, the eruptions, heavier in character, have a tendency to confine themselves to certain limited parts. In the earlier general eruptions, the process is limited to a slight exosmose of cells; but in the later eruptions syphilis produces nodules of different size, having their seat deep in the tissue of the skin, formed from an infiltration of new-grown cells. From what we have said it must be understood that syphilitic eruptions have as their elementary form, maculæ, papulæ, pustules, tubercles, ulcers, in common with other skin diseases. But from their appearance, we can easily distinguish a syphilitic affection from a skin eruption produced by other common causes. The peculiarities of the syphilitic eruptions are several; which, considered all together, give us the right of forming a judgment. The color of the syphilitic eruption has something peculiar, which was remarked by the most ancient authors on this subject, and was compared with the red color of copper-oxide, or of boiled ham. This peculiarity of the red color consists in this, that the red syphilitic macula, papula, nodule, tubercle, or halo, does not show that vivid rose-red remarkable in other non-syphilitic eruptions, but it is of a dark brownish or copperish *nuance*. In the earliest eruptions, roseola, papulous syphilis, the color is

more distinct, resembling the color of the oxide of copper, but in the later eruptions the color is more intensely dark, and resembles the meat of boiled ham. The intensity of the color is attributed to the condition of the crasis of the blood in syphilitic individuals, from some hemoglobine which issues from the blood-vessels; and really, in syphilitic subjects of delicate constitution, we see very often hæmatic spots, especially on the limbs, in consequence of the dissolution of the blood.

The disposition of the syphilitic eruptions on the skin constitutes another interesting diagnostic character, preferring some parts of the body, where other non-syphilitic affections never, or very seldom, are remarked. It is universally known that the mucous plaques appear in preference near the genitals; and papular eruptions affect the palms of the hand and the soles of the feet, producing that form known as *Psoriasis palmaris* and *plantaris*. Usually syphilitic eruptions assume a round disposition, and we find them constantly referred to as having the shape of an arch, an ellipsis, etc.

Polymorphismus is frequently observed in syphilitic eruptions; so very often with a roseola we find papules, with a papular eruption we find pustules, etc. No pain and no itching sensation accompanies the syphilitic eruptions, and only in cases of mucous plaques of the genitals the patients complain of an itching sensation, on account of the offensive discharge which irritates the surface of the skin. The crusts and scales produced by syphilitic eruptions have a characteristic appearance, which makes them easy to distinguish. In papular syphilis, the epidermis, decaying, becomes loose in the form of dirty grayish scales, which are adherent, and have nothing to do with the brilliant white scales of psoriasis, which is very easily removed.

Syphilis being a constitutional disease, when affecting the skin, has already affected the whole system; in consequence, the abnormal condition of the whole system will help to

elucidate the diagnosis. The lymphatic glands of the groins of the cervical region are already swollen; the erythema of the palate, the syphilitic rheumatism, a small degree of alopecia, have already begun; and in fresh cases we will also be able to find an induration in the place of entrance of the virus.

Syphilitic eruptions were classified in different ways according to the opinion of the various authors who have written upon the subject. We think that the easiest and most natural way of distinction is that based on the elementary form prevailing in the eruption. Therefore we have a class of (1) erythematous syphilis, (2) papulous syphilis, (3) pustulous syphilis, and (4) tuberculous syphilis. It is not our plan to describe the syphilitic forms of eruption for what concern the hygiene, but we wish only to determine the question whether there are prophylactic means to prevent the development of syphilis.

It is a very difficult task to guard people exposed to it from catching syphilis; and in spite of all the police regulations established concerning prostitution, especially in Europe, no great advantage has yet resulted. Syphilis is too proteiform a disease, and the individual who yesterday could not transmit the virus, to-day or to-morrow can be exceedingly dangerous. The experiment of Pellizzari in Florence speaks of itself on the possibility of the transmission of the syphilitic virus with the blood. He took the blood of a syphilitic person and inoculated three young physicians, one of them having syphilis from the inoculation. The experiment served to show conclusively that syphilis can be transmitted from the blood as certainly as from the secretive fluids of the organism. In this peculiarity of syphilis we find the reason why the strictest police regulations are not of much use in preventing the spread of syphilis, except where the syphilitic person is segregated forever from contact with others. Many and many people have been victims of this disgusting disease without their fault. Children inocu-

lated with the vaccine virus have got syphilis, communicated it to their mothers, and a true epidemic of syphilis has been spread in several places. Physicians and midwives very often have taken the syphilis attending a syphilitic woman in delivery. I saw in a glass factory three workingmen affected with the initial chancre in the lips by using the iron pipes for blowing the bottles, which had been used by a syphilitic fellow-workman. Therefore the protection for preventing syphilis is very doubtful.

Now remains another interesting question, whether we can destroy the virus on the place, preventing it from being absorbed and producing the syphilitic infection. All the interest of the question is in deciding whether the initial chancre is to be considered as the primary *foyer* of syphilis, or whether it is only the manifestation of syphilis already entered into the blood and the general system. At present we know, through well-directed experiments, that the syphilitic virus can be destroyed on the place of inoculation three days after the operation. Ricord referred to several cases of beginning chancre, which were destroyed with caustic after the first appearance, and the individual had no syphilitic consequences. An English physician, Welks, in 1866, proposed to treat syphilis abortively by the excision of the hard chancre. But the results were not satisfactory, and the easy operation was considered of no account. Sigmund considered the sclerotic induration not as the starting point of the syphilitic infection, but as the consequence of the already developed dyscrasia. Anyhow, in practice new experiments were tried, and the conclusion was reached that the syphiloma, completely destroyed in time, would prevent the infected individual from having the consequent syphilitic manifestations.*

I first saw the excision of hard chancre performed in the Polyclinic of Vienna, by Professor H. Auspitz in three cases, successfully in one, unsuccessfully in two. That was

* Cincinnati Lancet and Clinic, Dec. 8, 1883, p. 504.

in 1878. In the clinic of Rome (Italy) I excised hard chancre four or five times, but the syphilitic phenomena followed in spite of the operation. In consequence, I entertained the same opinion which Zeissl expressed in the *Wiener Mediz. Presse*, where he referred to five cases of excision without any benefit. Mauriac maintained the same view, and considered this operation as unable to prevent the development of syphilis. At several other times other experiments were made, some claiming success, others claiming inutility. In the Academy of Medicine in New York, Dr. P. A. Morrow read a paper to prove the inutility of this operation, referring to two hundred and twenty-two excisions performed by many operators, of which sixty were a complete success; but he expressed the opinion that the sixty successful operations were not cases of hard chancre.

F. N. Otis objected to the statement of Dr. Morrow, and he thought it possible, with the destruction of the hard chancre in its first appearance, to prevent the following diathesis. He had performed the operation fifteen times in the Charity Hospital, claiming in some cases prevention of syphilis, in others milder symptoms of the consecutive diathesis.

Paul Spillman* performed the operation in fifteen cases, and he claimed the excision of the hard chancre the method of aborting syphilis, considering the hard chancre as the place of elaboration of the syphilitic virus.

Bifani in Naples† referred to three cases of excision of the hard chancre with a complete success.

In my experience, as I stated in my communication to the Academy of Medicine, of four cases I had in three a complete success, and a failure in one. This result encouraged me to proceed and to consider the hard chancre as the place of elaboration of the virus which afterward spread in the general system. We do not know intimately the process

* *Annales de Dermatologie and Syphilis.*

† *Giornale Internazion., della Scienze Mediche*, 1881.

which is initiated in the place where the virus found its first entrance, but suppose that this virus comes in contact with the mucous layer of the skin, and by its own activity commences a slow alteration of the tissue, producing that callous induration known to every body. The induration was described by Beisiadecki as resulting from connective tissue, but according to observations of others, and also of myself, it consists in an enormous cellular proliferation. The cells are round, having two to three nuclei accompanying exactly the structure of the papillæ and of the fibres of the connective tissue of the skin. This appearance, I believe, is the most interesting feature for distinguishing the hard chancre from the soft chancre; and the dermatitis, where the papillæ and the disposition of the fibres of the skin are altered, is very difficult to be recognized. The most abundant infiltration is around the capillary blood-vessels. The process is a slow, inflammatory one, which by its stimulus, increasing the formative activity of the cells, produces the new-growth which we can call syphiloma.

It is now established that the syphilitic virus coming in contact with a healthy individual finds an entrance into the organism through an excoriation or a little abrasion of the epidermis, and the first alteration appears just on the place where it was first inoculated. This first alteration has commonly an appearance of a chancre, sometimes only of a little fissure, but always seated on an indurated basis, an induration which appears almost always in the form of a half pea, in the depth of the tissues, but sometimes it is spread on the surface, an induration called by Fournier *Chancre parcheminé*.

In our experience, in every case of syphilis which we have met we found always the first appearance as a local indurated point. We do not believe in the transmission of syphilis without the initial local alteration, and in the cases referred to, where syphilis was transmitted without appearance of chancre, it passed unobserved. In women,

especially, a small chancre can remain unobserved, having its seat among the folds of the vagina or on the neck of the womb.

We do not consider the chancre as a result of the general infection, but as a place of elaboration of the syphilitic virus. The very moment that this virus, which we know only by its effects and not in its entity, enters in the sub-epithelial layers it begins to work in its activity, and cell by cell, nucleus by nucleus, produces the induration, which reveals itself only some days after its entrance in the sub-epithelial layers. We know from the microscopical observations that the epithelial cells take a great part in the formation of an induration. In the meantime the lymphatic vessels begin to transport the cells in their course to the lymphatic ganglia, and this work is accomplished only some days after the first appearance of the chancre. In consequence the chancre can not be considered as an expression of the syphilis which has affected the whole system, but only the place of elaboration where the virus begins to work and from whence it spreads in the system.

We know from the statistics of Ricord that it is possible to destroy the power of the inoculation of chancre, within the first four days, by caustic substances. We do not have much confidence in the caustic; but by removing entirely the altered place we had good results in three cases. The operation is a very easy one. We hold the hard chancre with a pair of pincers, and with the shears we cut off entirely the induration a little above in the normal tissue. The hard chancre being thus removed with the scissors, we wash off carefully the surface with a carbolic solution. When the blood ceases to flow, and the surface is clean and disinfected, we sew the edges of the wound with two or three stitches according to the surface. In the happy cases, we had the healing of the wound by first intention and no evil consequence ever appeared.

When the hard chancre has its seat on the prepuce the

operation is very easily performed, but when it is on the tissue of the glans the operation is more difficult, and very likely to leave ugly scars. We believe that the lymphatic glands furnish the best sign as to the expediency of performing this operation. When the glands are already swollen, the excision of the hard chancre does no good; the virus is in the general system, and the diathesis has already begun. But when the glands are not yet swollen a few days after the first appearance of the indurated chancre, we believe that it is the duty of the physician to try this easy and simple operation, which will not only cure the patient, but will preserve his family from the most disgusting disease that weakens and deteriorates our race.

SYPHILIZATION.

After observing the results obtained from the inoculation of vaccine in preventing small-pox, very easily came the idea that it would be possible to protect the human race from syphilis by its preventive inoculation. The general opinion among the medical world, that man only is affected by the syphilitic virus, invited a French physician, Auzias Turenne, in 1844, to inoculate some monkeys, and in the same year he presented to the Surgical Society in Paris the result of the inoculation in monkeys; only it was necessary to see whether the chancre of the animal would be reproduced when inoculated in the human race again; and Dr. Welz, from Würzburg, who was in Paris at that time, volunteered himself as a subject of experiment, and having been inoculated with the virus of the chancre of one monkey, got a hard chancre. Ricord objected to the reproduction of syphilis in the animals, and he said that only a local chancre was reproduced, but not the secondary symptoms of syphilis. Auzias Turenne was inoculating his monkeys repeatedly, but he remarked that at certain points, the syphilitic virus had no more power, and no chancre was produced. This observation brought him to the conclusion that the animal, being

saturated with the virus, was no more impressed from its morbid action in the same way as the vaccine virus protects the individual from catching small-pox. The fact that the syphilitic virus, inoculated several times in one organism, has no more effect, suggested the inoculation of syphilitic virus, so as to prevent a man from having this diathesis by an acquired immunity. It is not necessary to say that many people subjected themselves to the artificial inoculation of the pus of the chancre until this had no more effect, and the system was believed to be entirely saturated. The syphilization was also applied in the treatment of syphilis, with the belief that inoculating pus of the hard chancre would have action on the syphilis actually in course. In this way it was both a prophylactic and a therapeutic syphilization. Auzias Turenne established in Paris an institute for syphilization, as a prophylactic and as a therapeutic means.

Syphilization was performed by inoculating chancre virus in three, four, or eight places at once, on the side of the chest or on the upper portion of the limbs. Pustules having been obtained, the pus was inoculated again in a second row of inoculation; and, still obtaining results, the pus of the new pustules was also reinoculated until no effect was obtained from their inoculation. Then pus of a new, fresh chancre was tried again; and when no more effect was obtained, the individual was declared syphilized, and considered as unable to get syphilis.

But the great question was whether really this immunity was durable. The experience of Fayes shows that an individual previously syphilized, and who for four weeks was no more impressionable to the syphilitic virus, after some time got a characteristic hard chancre, and the claimed immunity was only a temporary one.

Syphilization as a prophylactic means was entirely abandoned, being of no benefit, producing the evil effects of syphilis, to which nobody is compelled to be exposed. We

remember a distinguished professor in Naples, who, being a great supporter of syphilization, inoculated himself before the students with the virus of the hard chancre, and after several years he was affected with a cerebral gumma, which destroyed his mind.

What can we say of syphilization as a therapeutic means? In Vienna, in the clinics of Professors Hebra and Sigmund, in 1858 and 1859, several syphilitic patients, who never had used mercurial treatment, were subjected to the means of syphilization. The first patient—who was a waiter, with a papular eruption all over his body—was inoculated; the eruption disappeared promptly, and inoculations were continued till saturation, which was after two hundred and twenty inoculations. At that time the patient was allowed to leave the hospital; but a few weeks after, he came back with an abundant eruption of mucous plaques, which disappeared very easily with a mercurial treatment. In four other patients, who, in the years 1859 and 1860, were treated with syphilization, no symptoms of syphilis were yet remarked in 1861.

Sigmund began to treat fifteen patients with syphilization, but carried on the treatment only in twelve. In two patients only he succeeded in seeing the symptoms entirely out; but in the others the continuous relapses obliged him to apply regular mercurial treatment. The maximum of the inoculations done by Sigmund in order to reach saturation was four hundred and one, performed in one hundred and seventy-two days. But on account of the difficulties, the time wasted, the doubtful result, and the frequent relapses, he abandoned this method.

Professor Boeck, in Christiania, was a great supporter of syphilization, which he maintained as the true and successful method of treatment for syphilis. He started from the idea of the likeness of syphilis to the common exanthems, small-pox, scarlet fever, and measles, which, when once developed on the individual, cause an immunity to their virus,

if not forever, at least for some length of time. Professor Fayes denied the likeness between syphilis and exanthems, showing that immunity for the impression of syphilitic virus was only a temporary one, produced by the diminished sensitiveness of the skin to the irritation of the chancre virus. He believed that the apparent benefit of the syphilization was due entirely to the derivation produced from the caused pustules, just in the same way as by applying oil of croton or Tartar stibiatum. He sustained his opinion by the authority of Professor Langebeck, who cured several cases of syphilis by the application of Tartar stibiatum. Dr. Hjort, in the same hospital where Boeck was in 1856, began to treat the syphilitic patients with a salve composed of tartar emetic, two drams, hog's-fat and croton oil, each one ounce. The salve was spread over a piece of leather, and was applied on the skin of the patient in the size of a silver quarter, and kept on until a soreness resulted. When the soreness was better, another piece was applied, until the syphilitic symptoms disappeared. This method was very beneficial, especially in cases of roseola and of papular syphilitic eruption. But for other cases, where syphilitic symptoms were more intense, treatment lasted longer and relapses were frequent. Cullerier and Sigmund gave a favorable opinion of this manner of treatment, but Bärensprung expressed himself entirely in opposition. He saw many patients treated by means of syphilization in both ways, who afterward had plaques in the mouth and all the symptoms of constitutional syphilis. Lane and Gaseoyen condemn the method of syphilization as a useless one, and as a waste of time. Oeuvre, the assistant of Boeck, expresses a judgment against the syphilization, and does not confirm the results which were claimed by Boeck.

The course of syphilis during the inoculations is just the same as under the treatment with depurative decoctions, or without any treatment when in favorable circumstances. The patients who were taken in the hospital used to work

for their living, and, not accustomed to very good food, accepted treatment in the hospital for complete rest and better food. They soon showed an improvement, which was due much more to the better conditions of their general system than to the syphilization.

We mentioned the improvement of the general system, the hygiene as capable of treating syphilis, and here we find before us all the anti-mercurialists, who, afraid of the remedy, claim the best results from the hygiene. They accord surely to the mercury the action of hiding syphilis at first, but they attribute to mercury the tertiary forms of syphilis, especially the gummata of the bones. Diday * objects to the use of the mercurials in the first syphilitic symptoms, and he claims that, after some erythematous and papulous eruptions, every symptom disappears, and the patient is in good health without the use of any mercurial preparation. But also in his practice he found syphilis not always so mild and of so good nature. He saw cases which, without treatment, always grew worse, so that it was necessary to interfere with the needed remedies. Therefore he distinguished two kinds of syphilis, one which he called decreasing syphilis, and the other which he called progressive syphilis. In the first he would not use any mercurial treatment, while in the other he would use a strong mercurial treatment, as the only hope of saving the individual.

We can not make such distinctions. According to our experience, we know this disease as a proteiform one, capable of every mischief, and we remember always the words of Professor Fournier: "If you have been once syphilitic in your life, always tell your physician that you have been so." Very often the mildest cases of syphilis, which scarcely produce any perceptible eruption on the body, after a certain length of time cause the most terrible and distressing symptoms. We do not believe in a preventive action of mercury in

* Exposition critique et pratique de la nouvelle doctrine sur la Syphilis. 1858.

syphilis; neither do we believe mercury capable of producing a permanent recovery; but surely it is the best means at hand to cure the most menacing symptoms.

We remember a middle-aged woman with a papular syphilitic eruption and iritis. Having never used mercury, she was treated by experiment with a *celebrated antisymphilitic remedy, tayuya*. After several days of this treatment no change was remarked in the eruption, and the iritis was menacing the sight of the eye; therefore it was necessary to interfere quickly with mercurial treatment, which was the only hope. After a few subcutaneous injections with a solution of sublimate, the iritis was subdued, the eruption began to disappear, and by keeping on with this treatment, after a few weeks she was in a condition to leave the hospital without any syphilitic symptom. The instances can be multiplied indefinitely, proving without any doubt that, although the mercury is not able to destroy the disease entirely, it is, however, the best means to subdue quickly and surely the symptoms. When we see a patient near to lose his eyesight, or with a large perforation of the palate, or with an intracranial affection, we can trust only in a well-directed mercurial treatment.

It is not our purpose to write on the treatment of syphilis, as we are only sketching the hygiene of the skin, but we think it wise not to defraud our readers of our opinion on the best method of applying the mercurial treatment. It is necessary before beginning a mercurial treatment to keep account of the age and period of syphilis, and of the condition of the patient. When the patient suffers from no other disease, after ten or twelve weeks from the time the primary infection appears we can begin the general treatment. The use of mercurials before the breaking out of syphilis has no other influence than to retard the eruption of roseola, and no benefit is remarked on the subsequent symptoms. We do not hesitate to call it a mistaken treatment, when the patient begins it too early. His general

health is injured, and no beneficial result is obtained from the remedy. It seems that the syphilitic virus proceeds gradually into the organism before it reaches the blood; the lymphatic vessels transport the virus slowly into the lymphatic glands, which by its irritative action are swollen, and from these into the others, until the blood current is gained. Therefore it is necessary to remember that syphilis is a chronic virulent disease, and must be gradually and slowly treated. When we notice a surprising result after a treatment of fifteen or twenty-one days, we shall see that the local symptoms have subsided; but they are ready in a short time to appear again. We can say in a general way that the mercurial preparations which act too quickly and too energetically are followed very soon by other symptoms.

The introduction of mercury into the organism can be done either through the mucous membrane of the stomach, or through the skin. When we want a larger dose of mercurial preparation introduced into the organism, the endermic application is preferable.

According to the theory of Mialhe, every mercurial preparation, before it displays any therapeutic action, must be changed into a sublimate; therefore, sublimate is the preparation which is preferred for internal administration. But in many patients sublimate produces pain and spasms of the stomach, while they can easily bear proto-iodide or calomel. It seems that the sublimate developed in the stomach from the proto-iodide or from calomel does not irritate the mucous membrane of the stomach. Notwithstanding, sublimate has always been preferred, because, relatively to the other preparations, it does not so frequently produce ptyalism, or salivation. In our practice we have very often used calomel in Syphilis infantilis, and have never been obliged to refrain from the use of calomel among small children under our treatment.

To record the mercurial preparations, and the different formulæ used by the different authors in the internal

treatment of syphilis, would require a volume, beginning with Abernethy and coming down to Weinhold and Zittmann. We dislike the different preparations, and especially the proto-iodide of mercury, as causing pain and disturbance in the digestive organs. The treatment with sublimate is better borne by the patients, but it is necessary to be careful not to administer it in the case of hemoptoic and tuberculous individuals. It can be prescribed in solution as the *Liquor Vanswieten*, or in pills. Patients can bear sublimate from one-sixteenth of a grain to one-fourth of a grain in one day. In solution we may use:

R. Mur. hydrarg. corros., gr. j.
 Alcohol., q. s.
 Aq. destillat., ℥viii.

Solve.

Sig.—One desert-spoonful twice a day. It can also be taken in tea.

R. Rhum. optimi., ℥ss.
 Sublimat. corrosive, gr. j.

Div. in 16 parts.

Sig.—One part twice a day, dissolved in tea.

R. Mur. hydrarg. corros., gr. j.
 Solve in æthere sulph.
 Pulv. amyl. pur., q. s.
 Ft. pill. aeq. no. 16.

Sig.—One pill twice a day.

It is necessary to advise the patient not to take the remedy on an empty stomach, but near his meals, in order to avoid the irritation and the colic which frequently follow the use of the sublimate.

In our practice we are not very fond of the internal use of mercurials, as the result is not constant; and very often the patient begins to suffer with disturbances of the stomach. In syphilis it is important to keep the patient as strong as possible, and a good nutrition will prevent serious ravages from the disease. Furthermore, sublimate very often, finding mucus in the stomach, is combined with its albumin in the

form of an albuminate of mercury, which is not absorbable, irritates the mucous membrane of the stomach, and no result is obtained. For these reasons we prefer the introduction of the mercury through the skin, saving the stomach for good food and better nutrition.

There are two methods used for this treatment—the one, innunctions (frictions) with mercurial ointment; and the other, subcutaneous injections, with a mercurial preparation.

Inunction with a mercurial salve is one of the oldest ways of treatment, and was so commonly and so carelessly applied that, on account of its sad consequences, physicians condemned it as dangerous and obnoxious. Notwithstanding, at the beginning of this century Louvrier and Rust reintroduced it in their practice, making a specialty of treatment by innunctions. They had a wrong idea, that salivation was the way by which the organism could be rid of the syphilitic infection; therefore, they continued the use of innunctions until the saliva was bloody and the tongue and the gums were fearfully swollen. This is the reason that people became afraid of this method, just as they were of an amputation.

This method, as we saw it practiced in the clinic of Professor Sigmund and of Professors Zeissl and Hebra, is now reduced to its utmost simplicity and utility. The patient, after having taken a warm bath, rubs the mercurial ointment upon himself every night before going to bed. The quantity is from one scruple to half a drachm for each innunction. We prescribe:

R. Unguent. hydrarg. ciner., 3j.
Div. in ch. aeq. no. 6, for 6 innunctions.

The patient divides the package into two parts, which he applies upon both sides of his body. He proceeds to rub: First evening, on the internal surface of the feet; second, on the internal portion of the legs; third, on the internal portion of the thighs; fourth, on both sides of the chest; fifth, on

the internal surface of both arms; sixth, on internal surface of the upper arms. After six days the inunctions are repeated in the same order as before, only making one inunction every two nights. In places furnished with heavy hair, it is better not to rub, as it very often produces inflammation of the follicles of the hair, which is sometimes annoying. So we must advise the patient not to wash the place after the inunction, for wetting it with water would chafe the skin, and very likely produce an eczema.

The time required to rub, the care necessary to be taken during the treatment, the soiling of the under-garments, and the frequent salivation, are reasons why we prefer subcutaneous injections.

Alexander Wood, in 1855, gave to therapy the new method of introducing remedies into the body through the subcutaneous tissue. The Pravaz syringe made the performance of this method very easy. Syphilis, so stubborn under every form of treatment, was first tried with this new method by Christ. Hunter, who introduced corrosive sublimate into the subcutaneous tissue. Hebra followed the path of Hunter in 1860, in the case of a young girl twenty-one years of age. He injected twenty grains of corrosive sublimate during twenty-five weeks of treatment, without causing salivation. F. Hebra injected a solution of one grain of sublimate in half an ounce of distilled water, using from seven to ten drops at every injection. He remarked that the syphilitic eruption began to disappear at first from the place where the injections were applied. Berkley Hill and Lewin, in a large number of cases of syphilis, applied injections of sublimate, and in some cases iodide of mercury with good results.

Scarenzio and Ricordi, in Italy, injected calomel in large doses, about seven or eight grains at each injection, with rapid success. But it was soon noticed that every injection of calomel produced an abscess, which sometimes assumed severe proportions.

When Berkley Hill began to inject sublimate, he used no more than 0.001, in order to prevent the pain arising from the local action of the sublimate; and Lewin dissolved some morphia with a solution of five milligrammes, to alleviate the local pain. Zeissl, in his treatise on syphilis, refers to cases treated in this way, but he complains of the pain and the large abscesses arising from the injection.

Some authors wrote against this method, even doubting the absorption of the mercury when introduced in the subcutaneous tissue. The pamphlet of Scarenzio and Ricordi removed every doubt when they stated that the absorption is much more rapid and sure by this than by any other method. Indeed, in twenty-four hours after injecting four grains of calomel, they could find traces of that drug in the saliva, taken directly from the stenoian duct.

Every author, speaking of the manner of performing the injections, says to choose the external portion of the arm, or, as Sigmund wrote, select the lateral regions of the breast on which the patient does not lie. But all agree as to the pain excited by injection, and admit the danger of the abscess.

We were amazed to see Professor Auspitz, in the Polyclinic of Vienna, treating all his patients with hypodermic injections of corrosive sublimate without causing either pain or abscesses. Auspitz introduced the needle of the syringe deeply its whole length in the region of the glutei muscles. In a considerable number of cases which we followed for about one year, we never saw an abscess, the patient being always able to return to his business without complaining of any pain. In the clinic in Rome we applied this method, and in the first year forty-six cases of syphilis were treated by means only of intra-muscular injections of sublimate, with very encouraging results. Here, in Cincinnati, we have treated a large number of syphilitic patients of both sexes with the best success and the least trouble. We use a solution of one gramme of corrosive sublimate to one hundred grammes of distilled water, keeping account of the doses of

the sublimate introduced into the body, which is easily done, as the Pravaz syringe holds exactly one gramme of fluid. Thus every one knows that, after twenty injections, twenty centigrammes of the sublimate have been introduced into the system. We give the injection every other day, alternating the place, one day injecting the right side, and the other the left side of the gluteal portion.

Comparing the different methods of treating syphilis, it is certain that this has many points to recommend it. It is very prompt in its effect, so that after a few injections the result is highly perceptible. It is very speedy in its application; in half a minute the injection is done, and the patient can return to his occupation. Applying the injection deeply in the muscular mass of the glutei, the pain is scarcely appreciable, and not sufficient to distract the patient from his occupation. It is very secret, requiring nothing on the part of the patient to avoid suspicion. Salivation rarely occurs, less frequently than with the other methods. The stomach is perfectly free, and the patient can eat with good appetite, and improve his nutrition, which is very important in the treatment of this disease. With this method we can keep account of the doses of mercury introduced into the body, which is very difficult by the other methods, where the introduction depends on the patient.

RHEUMATIC DIATHESIS.

This was considered by several authors as one of the most effective causes in the production of skin diseases. Bazin wrote on the *Arthritides*, assigning this name to a class of skin eruptions. He described certain characteristic features of the arthritic individual with functional disturbances of his skin, as excessive perspiration, especially in the head, axillæ, hands and feet, and sexual organs; affections of the sebaceous glands, premature falling of the hair, etc. Eczema, in its dry form as squamous eczema, psoriasis, would be the result of this diathesis. Garrot, at the International

Medical Congress in 1881, read a paper on eczema and albuminuria, in relation to gout, affirming that each year his opinion is strengthened that gout and eczema are most closely allied. He believes that eczema is the special skin lesion of gouty subjects, affecting in preference the more tender and vascular regions of the skin. He remarked, as more liable to be attacked, the eyelids, the ears, the scalp, the back of the neck, the fingers, the toes in their dorsal and lateral region, and in old people the legs.

Speaking of the arthritic diathesis, we will comprehend under this name both the affections, rheumatism and gout, as having some points of affinity between themselves. Prout advanced the theory that the arthritic diathesis consisted in the presence of lactic acid in the blood, from the physiological knowledge that during muscular exercise sarcolactic acid and acid phosphate of potassium are formed, and carbon dioxide set free, in the muscular tissue. Now, when the elimination of these substances is checked by a sudden cold impression, there is an increased accumulation in the system. To this theory it was objected that lactic acid is found in the urine of children affected with rickets, and the improbability that some lactic acid retained for a moment in the system may maintain the excessive acidity of the urine and of the other fluids during a long rheumatic fever. It is also incomprehensible why the lactic acid only should be retained, and not the other acids, as formic, acetic, butyric, etc.

A neuropathic theory of rheumatism has been advocated by several authors, who show that, where cold acts on the vasomotor or trophic nerves of the articulations, there is excited inflammation. We can not understand these neuroses in rheumatism, when we compare it with its closely allied affection, *gout*, which involves the same organs, and by many of the ablest pathologists is considered to be the same basic diathesis. Gout is undoubtedly due to the perverted relations of uric acid and sodium, and to the presence of urate

of soda in the blood. From analogy the phenomena of rheumatism can be attributed to the perversion of the process of assimilation and excretion, and to the presence of an intermediate product of destructive metamorphosis—lactic or other acid.* These views are strongly advocated by Mac-lagan and Senator. The presence of these principles in the blood, producing diathesis, acts on the nervous system, and after a while on the different tissues. In this way we have a neurohumoral affection in rheumatism, which permits us to explain the different symptoms which we remark on the skin. Some skin eruptions in arthritic individuals are due to the perversion of the vasomotor nerves, probably by the irritation produced on the centra from the humoral alteration. Others are due to the condition of the tunics of the blood-vessels affected by the arthritic diathesis, and made friable and incapable of withstanding the impulsion of the blood. Others are of a simple, local irritative nature, by the excretion of the perspiration and the sweat containing irritative elements inflaming, therefore, the glands of the skin.

Erythema, in its varieties, is frequently met with in rheumatic individuals, generally preceding an attack of acute rheumatism. A *Roseola rheumatica* has been already described by Alibert and Fuchs. Erythema is described, according to its different appearance, as *Papulatum*, *tuberculatum*, *annulare*, *iris*, and *gyratum*, and F. Hebra comprehended all the different forms in one name: *Erythema multifforme*. The affection is always the same, and the different shape of the patches does not alter its essence. The eruption appears on the back of the hands and of the feet, and sometimes affects only the legs and the fore-arms, and very seldom the body and the face. The eruption consists in spots, elevated above the level of the adjoining skin, from the size of a split-pea to a bean, of a bluish-red or brownish-red color. The spots in this way offer the characters of *Erythema papulatum* or *tuberculatum*, affecting sometimes

* A System of Practical Medicine. Philadelphia. 1885.

also the fingers, and having some likeness to chilblains. When the patches remain a long time, the redness in the middle disappears, and the edges only show the swelling and the red color, producing what we call *Erythema annulare*. In the same way two spots, one near the other, joining themselves through the edges, can produce that figure which we know as *Erythema gyratum*. The only question is as to the shape of the eruption and the degree of the erythema, but none as to its entity.

Several efficient causes are assigned of erythema, and according to the last studies of Jarish,* it would seem to be a disorder in the gray axis of the spine. But erythema has been also remarked after ingestion of irritative substances, as several kinds of crustacea, molluscs, and of some remedies, as balsam of copaiba.

Bazin considers the arthritic diathesis the cause of erythema. In 1877 we illustrated some cases of *Erythema exudativum multiforme* treated in the hospital of San Galliano in Rome, Italy, where the most apparent cause of the erythema was the rheumatic condition of the individuals. The eruption was preceded by rheumatic pains in the joints, and a slight feverish attack; and after a while the eruption took place.

We will not maintain that the cause of erythema is exclusively the rheumatic diathesis; but among the several causes we will comprehend this dyscrasia. If the ingestion of several kinds of food, or the ingestion of different medicines is capable of producing erythema, we do not see any impossibility that the several organic acids retained in the blood may produce such an irritation on the nervous center as to produce the erythematous eruption. Erythema is very often seen in Spring and in Fall, lasts from two to four weeks, disappears without desquamation, but sometimes on

* Über die Coincidenz von Erkrankungen der Haut und der grauen axe des Rückenmarks. Sitzungsberichte der K. Academie der Wissenschaften III, Abth. 80 bd. 1880.

the spots there remains a slight pigmentation. The treatment is only an expectative one, and when of rheumatic origin the remedies must be directed to the cause.

Different from the above-mentioned erythems is considered *Erythema nodosum*, on account of its form, course, and seat, which has also been called *Dermatitis contusiformis*. Here the exudation is very abundant, producing a kind of roundish or oval tumors, elevated on the level of the skin, and painful under the pressure of the finger. It appears usually under a feverish attack, preceded by a chill. The tumors develop themselves on the legs under the knee, from the size of a pea to that of a fist. The color is at first somewhat more yellowish than the normal color of the skin; then it changes after a while to a bluish-red, giving all the *nuances* of ecchymosis before disappearing. The number of these intumescences is not large. Sometimes they vary from four or five up to ten, and frequently, when one disappears, another comes back again. The infiltration is of the skin and of the subcutaneous tissue, and it is a real bloody exudation, which gives the appearance of the ecchymosis. The eruption lasts from two to four weeks, accompanied with severe arthritic pains in the joints and in the muscles. The patient is restless, loses his appetite, and when the arthritic pains subside the erythema slowly disappears and the system returns to the normal condition.

We can not maintain that *Erythema nodosum* is an exclusive eruption produced from the arthritic diathesis, as has been supported by several authors. Uffelman remarked this eruption in some relation with tuberculosis in children. But anyhow we can not deny that the most common and effective cause of this rare and singular eruption is the arthritic diathesis. Therefore the treatment must be directed to the principal cause, and on the locality. We use baths, with astringent solutions, so as to relieve the intense pain and increase the reabsorption of the exudation.

Peliosis rheumatica is another affection connected with

the rheumatic dyscrasia, which has also been called *Purpura rheumatica* and *rheumatokelis*. Under feverish symptoms, accompanied with arthritic pains and gastric intestinal disturbances, an eruption appears on the skin and on the mucous membranes, consisting of hematic spots, produced by the extravasation of the blood in the meshes of the tissue. It begins as red hemorrhagic spots, about the size of a pin-head up to a lentil, which, in twenty-four or forty-eight hours, cover the whole surface of the body. When the hematic spots are disappearing, sometimes an eruption of new spots takes place. In this way we remark several successive eruptions. The parts most subject to the eruption are the inferior limbs.

The end of this disease is usually not unfavorable; but sometimes by its reappearing, and by the hemorrhages from the mucous membrane of the mouth and of the intestines, it may reach a dangerous point, and threaten the existence of the patient. The cause of this disease seems to consist in an alteration of the tunic of the capillary blood-vessels, which, made friable, easily break and produce interstitial hemorrhages. The alteration is probably induced in the blood-vessels by the salts deposited from the blood when the arthritic diathesis exists.

The patient must be kept in bed in a horizontal position, so as to diminish the tendency of the blood to stagnate in the lower limbs. No pressure must be allowed on the skin, and bathing with cold water and vinegar has been found to produce satisfactory results. Ergotine, *Secale cornutum*, and perchloride of iron are recommended, especially when hemorrhages from the mucous membrane exist. To quiet the pain of the stomach, pills of ice and of opium are the best means, and purgantia must be used very carefully. Acid drinks of sulphuric or phosphoric acid, lemonade, etc., are recommended as an astringent. A strong reconstituent diet is of greatest importance to support the nutrition of the patient.

In the course of rheumatism, when the patient abundantly perspires, very often *Miliaria alba* and *sudamina* appear. These we find also in other diseases where the sweat-glands are irritated by the copious sudation. It is possible that the sweat in rheumatism, being more acid, and in consequence more irritative, produces those eruptions more frequently than other affections.

What about eczema? According to our experience, eczema has nothing to do with arthritis. Eczema is an independent form of catarrhal inflammation of the skin, which can be produced from different causes, as we noticed in the observations above referred to. In a large number of cases of eczema treated in our clinic, and in our private practice, very few patients ever had rheumatism in their life. An arthritic individual, who very frequently and abundantly perspires, may be affected with eczema, which must not be ascribed to the arthritic diathesis, but to the irritative action of the perspiration, just in the same way as it would be produced from any other irritant substance applied on the skin. *Eczema ani*, which very often was attributed to the arthritic diathesis, we found to be rather caused by the presence of hemorrhoidal tumors, which, producing some discharge, were the cause of the eczema of that region.

HERPETIC DIATHESIS.

In medical books of ancient times we find very often the word *ἑρπης* (herpes) applied as signifying different skin diseases. Hippocrates called by the term *herpetes* several affections, which, he said, appeared on the skin without establishing any peculiar eruption. Celsus and Galen described several skin affections under the name of herpes; and the latter especially comprehended several forms of ulcerations of the skin, without any thing of a determined character. The Arab physicians, Razes and Avicenna, and the physicians of the middle age, Sennert Mercurialis, and others, did not furnish any definite description, and continued

under this name of herpes to describe pustular and ulcerative eruptions.

Lorry and Plenck did not change their views, and under the name of herpes grouped many different skin diseases. Willan applied the name of herpes to several affections consisting of vesicular eruption, as *Herpes zoster* and *labialis*. But Willan found an opponent in Alibert, who established a large class of skin diseases under the name of *Dartres*, with the different families of *Herpes furfuraceus*, *Herpes squamosus*, *Herpes crustaceus*, *Herpes exedens*, *Herpes pustulosus*, *Herpes phlyctenoides*, *Herpes erythemoides*.

Many authors, as Rayér, Cazenave, Chausit, Wilson, Fox, Hebra, followed the views of Willan, limiting the meaning of herpes to a certain vesicular skin affection localized. Other authors followed Alibert, comprehending under the name of *Herpetes*, *Dartres*, *Tettres*, about all the chronic skin diseases. In order to assign a cause for this big class of eruptions, several authors established a peculiar diathesis which they called *Herpetic Diathesis*, *Herpetismus*.

Bazin gives the characters of the individual affected with the herpetic diathesis, which he believes the most efficient cause of the several eruptions included among the herpetic diseases. We can not agree with the views of Bazin, and we are obliged to object to the idea of herpetismus. This is an imaginary diathesis, which was never proved, and was only proposed so as to explain the unknown by the unknown. It was very handy for the physicians not well acquainted with the skin affections to persuade the patient that he had a herpetic disease, that he ought to take sulphur internally to drive out of his system the bad blood. The patient was satisfied that the eruption was a benefit to him, and he was afraid to cure his eruption, which would otherwise go back into the organism and attack vital organs. Wrong observations supported the theory of the metastasis; for cases of eczema in a man affected with a severe pneumonia or with typhoid fever have disappeared in the acme of the acute

disease, on account of the semi-paralytic condition of the skin. This reappearing in the re-convalescence has furnished false proof of a metastasis. The supporters of the metastatic doctrine were accustomed to reason in the following way: When eczema disappeared from the skin, it went to the internal organs, causing pneumonia; and when the individual began to grow better, then eczema came back to the skin, leaving free the lungs.

We will not insist further on this argument. Herpetismus does not exist, remaining only a fabulous consequence of wrong and incorrect observations.

DIABETES MELLITUS.

A group of symptoms very complex, of which the most conspicuous is an increased flow of saccharine urine, produced either by a derangement of the sugar assimilation of the liver, or by an alteration of the nervous system, is what is called diabetes. The sugar free in the blood is segregated from the kidneys, and, as a general disease, with the presence of glucose in the blood, we refer to the article on the Diatheses. The blood of diabetics is variously charged with sugar, which may be in such quantity as to impart a viscosity and higher specific gravity to the plasma. The skin, as the other organs, is affected in diabetes, and exhibits a peculiar dryness; and the patient is troubled with an intolerable itching sensation. Trousseau first called attention to the pruritus of the genital organs as a symptom of diabetes, and he suspected this affection in a lady annoyed by Pruritus vulvaris before any other symptom was present. A chemical examination of the urine in her case revealed glucose. Professor Fournier delivered a course of lectures on skin affections arising from diabetes, which he called *Diabetides*. We do not find any thing peculiar in the eruptions of the skin accompanying diabetes to authorize us to make a special class, but we believe it our duty to call the attention of practitioners to them on account of their frequency.

As a general rule, in cases of pruritus of the genitalia, the urine should be examined, and very frequently sugar will reveal the origin of the itching sensation.

The eruption at first consists in an erythema of the genital parts, which in woman extends from the vulva to the internal region of the thighs. It is of intense red color, and on the folds of the skin is more accentuated with superficial erosions of the epidermis. When the erythema lasts for some time the inflammatory process increases, and passes to the degree of an eczema. The redness is increased, the parts are swollen and œdematous, with an abundant discharge of a serous secretion. The acute burning pain very often prevents walking, and is exasperated at every micturition. This eczema has an acute character, but has nothing peculiar in itself to distinguish it as a diabetic eczema. The only peculiarities are its persistence, being connected with the presence of sugar in the urine. When the diabetes is improved, the eczema subsides. The local applications of lotions, powders, etc., can relieve the acute symptoms of eczema, but can not cure them; therefore the utmost care must be taken to improve the diabetic condition. This eczema has also a great tendency to a relapse. As the quantity of the sugar in the urine sometimes increases and at other times diminishes, so the eczema subsides for a while and afterwards revives, resulting in a chronic state.

In men the erythema is frequently the cause of a balanoposthitis and phimosis. In such cases it is necessary, in micturition, not to wet the skin, and to wash afterwards so as not to leave the sugar in contact with the erythematous skin. The use of insulating powder is the best method of protecting the skin and reducing the inflammatory symptoms. This is made of amyllum and oxide of zinc in equal parts. Bathing with a slight solution of borate of soda, or of sugar of lead, is very useful to diminish the erythema.

In these cases a surgical operation must be avoided. Beauvais referred to a case of balanoposthitis with phimosis,

where Richet circumcised the patient, not knowing that he was diabetic. On the third day after the operation an abundant hemorrhage began, and on the fifth day an erysipelatous swelling of the penis appeared, with a livid color. Phlegmon, with several gangrenous points, fever, and multiple anthraces supervened; but after a very dangerous condition the patient fortunately recovered. Another case is reported by De Palle—a young man, diabetic, who, on account of phimosis, was circumcised. Gangrene extended all over the skin of the genital parts and of the superior portion of the thighs, and the individual died. The same sad result happened in another diabetic, who died on account of phlegmon of the genitals and of the abdominal portion. This case is referred to by Demarquay. These observations must always withhold the hand of the surgeon in cases of phimosis, when there is a suspicion of diabetes; and before resorting to circumcision in these cases the urine must be examined, so as to avoid further complications.

Sometimes the erythema of the genital parts passes to the degree of a gangrene without any seeming provocation. The cases are very rare, but some have been reported. Gubler remarked a case of spontaneous gangrene in a diabetic patient affected with balanoposthitis and phimosis. Without any apparent cause Niepce observed a gangrenous balanoposthitis in a diabetic, followed with an anthrax on the thigh. Fournier, too, remarked on a diabetic, while in apparent good health, the appearance of gangrenous spots on the skin of the genitals, which spread over the surrounding parts.

We have referred to these eruptions, caused by diabetes, not with the intent of establishing a new class of skin diseases, but only to point out that diabetes is capable of producing those affections, which must be carefully treated because of their tendency to pass to gangrene.

CHAPTER VI.

SKIN DISEASES WHICH ARE PRODUCED BY A PARTICULAR VIRUS OR VIRULENT IMPRESSION.

THERE is a group of skin diseases produced by specific morbid causes or viruses. Each member of this group has its own virus, which is capable of reproducing and of maintaining the intensity of the disease.

The word *virus* was formerly applied indiscriminately to poison of any kind; but we prefer to follow Behier and Hardy, and limit its signification to a morbid element, whose ultimate constitution is not definitely known, but which is capable of being transmitted by inoculation or by direct contact, and of reproducing the same disease in another individual. To determine the exact nature of these viruses has always been a difficult matter, but the pathologists and histologists of to-day—Klebs, Luginbühl, Erisman, Cohn, Zulzer, Weigert, Tschamer, and Koch—have shown that the essential power of a virus rests in a micro-organism, and that this may be transmitted from one individual to another in various ways. Thus these micro-organisms (micrococci, bacteria, bacilli, etc.) may be transmitted with the blood, pus, or secretions, as is the case in variola, morbilli, scarlatina; or these same organisms may become dried up in the foregoing secretions and fluids, thus forming crusts, which are then the carriers of the disease. Again, these same fluids and secretions may become more or less volatilized, dried, and thus be thrown off with the breath or the perspiration. The substance which contains the virus, therefore, may be either a solid, a fluid, or a vapor; in other words, it may be either fixed or volatile.

The contagious impression is not immediately followed

by its specific effect, but only after a certain space of time has elapsed. Thus when vaccination has been practiced the pustule of inoculation appears after several days. During this period, which is known as the period of incubation, a process of germination or fermentation takes place, and the disease is latent.

The virus finds an entrance into the system by absorption through the lymphatics or the blood-vessels of the skin when a wound exists upon the external surface of the body, or through the unbroken mucous membrane. The period of incubation has been determined for a great many contagious diseases. It requires three or four days for the development of the vaccine pustule; one to six days for malignant pustule; two weeks for small-pox, and two to four weeks for syphilis, etc. The virus is generally much more powerful when contagion takes place near the period of invasion in the disease from which contagion arises. Thus syphilis is very virulent in the earlier stages, but during the tertiary stage it can not produce infection. The virus of small-pox is capable of maintaining its contagious properties for a very long space of time, and even after the death of the patient it possesses virulence. Ozanam and Guerard refer to some cases in which small-pox was produced from the clothes of a patient who died of the disease, even after several years had elapsed. These clothes had been packed in a trunk and sent to a distant country.

The question as to whether two kinds of virus could enter the body at the same time has been much discussed, and Fouquier, Chomel, Moret, Rayet, Monti, Fleischman, and Thomas have cited cases in which measles and scarlet fever, scarlet fever and small-pox, etc., have existed together. I, however, have never had the opportunity of seeing such a combination, and Hebra was of the opinion that where such cases are supposed to have occurred the observations were not carefully made, but there was simply a *Roseola variolosa*, or *scarlatinosa*, preceding the appearance of the exanthem.

Erythematous eruptions frequently appear before the true eruption of small-pox, and very often in small-pox there appears a *roscola*, which, in fatal cases, is afterwards replaced by hemorrhagic spots, black small-pox, or *Purpura variolosa*. Nearly all of the contagious diseases which show skin eruptions run an acute course, and have certain characteristics of eruption. The virus affects the body generally through the blood and nervous system, producing thus a systemic intoxication, with constitutional reaction. Thus in all acute exanthems—such as measles, scarlet fever, small-pox, etc.—there are symptoms not only upon the skin, but also in other organs and tissues.

Davaine demonstrated that by inoculating a rabbit with the thousandth part of a drop of putrefied blood, death followed in three days; that is, that an infinitesimal part of the virus produced constitutional symptoms and death. It is not difficult to judge, then, how a very small quantity of the poison may produce the special disease.

These diseases are divided usually into well-defined periods, and a knowledge of these periods is necessary to a correct diagnosis and proper treatment. The period of incubation has been mentioned. This is common to all contagious diseases, and dates from the time of inoculation or exposure to the virus, and ends when the symptoms appear. During this period the individual is apparently in good health, and gives no signs of what is to follow. The period of incubation varies in duration from twenty-four hours to some weeks, and is not constant even in the same exanthem. This variation in time is due to several factors: 1. It is not always possible to fix the date of exposure exactly; 2. The resistance of the economy must be overcome before the disease can manifest itself, and, consequently, the development is slower in the stronger, *i. e.*, the more resistant natures; 3. Age also has its influence; children are much more liable to these diseases than adults, and the period of incubation is usually much shorter in the young; 4. Moral impressions,

bad nutrition, and other inter-current diseases, also modify the period of incubation. It has been noticed that when small-pox or measles develops in children's hospitals, the children who have other acute diseases do not contract the above-mentioned diseases until the period of convalescence has set in. There is also upon record the case of a typhoid fever patient who was exposed to the contagion of small-pox, but who showed no symptoms of the latter disease whatsoever until ready to quit the hospital, when the small-pox made its appearance.

The second period is known as the period of *Prodroma-stadium prodromorum*, or the period of invasion. After the virus has passed through its incubation, and has poisoned the blood, so to speak, it affects the nervous system, and brings about the general reaction fever, which is very intense in small-pox and scarlet fever, and milder in measles. When the fever begins, other symptoms accompany it. In small-pox there are vomiting and severe backache; in measles, coryza and abundant shedding of tears; in scarlet fever, sore throat, pharyngitis, etc.; and in all there are certain common symptoms (as is true of all acute infectious diseases), such as nausea, weakness, headache, etc. Frequently nervous symptoms also show themselves during this period, and are of special importance in determining the malignancy of the disease. They take the form of delirium, convulsions, and prostration.

The duration of the period of invasion is variable, but as a rule it lasts three days in the acute exanthems, and merges into the third period, or that of eruption. The period of eruption is not characterized in the beginning by any particular or special eruption by which the diagnosis can be positively made, because, as has before been mentioned, there is a great similarity in the first eruption of the three diseases under consideration. After a day or two, however, the eruption takes on its characteristic appearance.

The period of eruptions lasts, in measles, three to four days, but in scarlet fever and small-pox it may last weeks. Generally during this period the fever is not so high, the symptoms abate somewhat, and the patient feels slightly better than during the period of invasion.

The characteristic eruptions are, in measles, small red spots or papules; in scarlet fever, large red patches of erythema, and umbilicated pustules in small-pox. With the pustules of small-pox the fever rises again.

The fourth period is that of desquamation. The redness of measles and scarlet fever disappears in the furfuraceous desquamation, in which the epidermis becomes dry, and scales off in larger or smaller pieces. The pustules of small-pox dry up into crusts, which fall off and leave a permanent scar.

The desquamation is sometimes marked by the presence of such large strips as to receive the name *Desquamatio membranacea*. When the effort is made to explain the real cause of the eruption in the acute exanthems, difficulties of considerable magnitude are encountered.

F. Hebra classed the exanthems under the exudations, and thought that an exudative process took place under the epidermis, and that this exudation produced papules in measles, and vesicles and pustules in small-pox. An exudative process, however, really explains nothing as to the cause.

Auspitz* classified the exanthems under the head of *Angioneurotic dermatoses*, and attributed the eruption to a disorder of the nerve centers. The virulent poison was supposed to have affected the ganglia of the vasomotor nerves. H. Hebra,† following the opinion of Auspitz, established a class of skin diseases in which he embraced all the infectious eruptions, among which he comprehends the exanthems. According to his explanation, the eruption is due

* System der Hautkrankheiten. Wien, 1881.

† Die Krankhaften Veränderungen der Haut. Wien, 1884.

to a disturbance of nutrition, because of an irritation of the nerves regulating circulation and nutrition of the skin.

There are undoubtedly certain skin eruptions strictly limited to the course or distribution of certain nerves, either upon one or both sides of the body. The course of the nerve can be accurately traced out, oftentimes, by the distribution of the eruption. We know that these diseases are due to alterations or irritation in that particular nerve or nerves.

In the case of the exanthems, the eruption is so widely distributed that we must consider the irritation to be of central origin, thus producing spasm and subsequent paresis of the vasomotor nerves, and consequently a change in the tonus of the blood-vessels. This theory finds support in cases of paralytics, who, becoming affected with an exanthem, as small-pox or scarlatina, have the paralyzed side of the body entirely free from the eruption. The condition of the nutrition of the skin has also an influence upon eruption of an exanthem, because in cases of ichthyosis in which small-pox occurs, the pustules of the latter do not appear when the ichthyosis is present.

The elementary forms of eruption, the papulæ, maculæ, and pustulæ of these diseases, follow in their distribution the lines of the skin and the disposition of the glands. The capillary blood-vessels are arranged as a network about the glands, and it is here that the eruption is most abundant and best developed. This fact supports Auspitz's idea, that the exanthematous eruption comes from a disturbance of the vasomotor nerves. The nerve disturbance produces hyperæmia and stasis in the vessels, these produce inflammation, and inflammation causes an exudation and disturbance of nutrition.

It is not my purpose to describe the individual exanthems, but I wish rather to speak of these diseases from a hygienic stand-point, and especially as regards the prevention of their spreading. As every one knows, there is a

certain acquired immunity from these diseases in every one who has once had them. A recurrence of the same disease is possible, but is not the rule. Sydenham described, under the name of *Varioles regulares*, an epidemic of small-pox which occurred from 1667 to 1672, and which ran a very regular course, and generally resulted favorably to the patient. He also described, under the name of *Variola anomala*, another epidemic, which occurred between the years 1674 and 1675, and was characterized by great irregularity in its course, and generally fatal results. The fact, then, that there might be mild and malignant epidemics of the small-pox gave rise to the idea among physicians of exposing those who had never had the disease to the benign form, and thus preventing their having the severe one.

Eimer states that inoculation was practiced in China in the eleventh century, and in Africa in the eighteenth (1700.) Inoculation of the pus from small-pox pustules was practiced in Constantinople; the idea being that when the pus was taken from a mild case of the disease the individual inoculated became affected with a mild form, and was ever afterwards free from the possibility of contagion. Lady Mary Wortley Montague, the wife of the English minister, allowed her children to be thus inoculated, and introduced the practice into England; but her example was not followed to any extent, and indeed it was especially forbidden in certain places. Europe, therefore, derived no benefit from this knowledge, but suffered as heretofore from the devastations of the scourge.

A comparison of the dreadful mortality from small-pox, during the last century and during the present, will persuade every one of the blessing of Jenner's discovery in 1798. He was a real benefactor to the human race.

VACCINATION.

The fact that, during epidemics of small-pox, cows presented a kind of eruption upon their dugs similar to that of

the disease, had not escaped the observation of physicians, and Salzer in 1713 wrote a pamphlet entitled, "*De Lue Vaccarum.*" Sutton, Fewster, and Platt also wrote pamphlets in which it was noted that when cows had this eruption and were handled by men with scratches or cuts upon their hands, these men never got small-pox. But Jenner in 1796 made the most conclusive experiments, which he published in 1798, and by which he demonstrated the power of the inoculation of the vaccine virus in protecting individuals from small-pox.

These experiments were repeated in other European countries, and De Carro, Ossiander, Sacco, Woodville, Gassner, Neumann, Thiele, Cedy, and others, proved the identity of the vaccine virus with that of small-pox by inoculations from men to animals, and from animals to men. These observers could not, of course, prove in the beginning that a person so inoculated would be safe against small-pox during his whole life, but they very quickly demonstrated that when an inoculated individual did get the disease he had a very mild attack, with but few pustules, and a rapid recovery.

When small-pox attacked the inoculated, it ran so mild and so regular a course that it received the name of varioloid. Some subsequent authors have held that varioloid and variola were not the same disease at all, but different species with different virus. This question has been settled by the investigations made to determine whether *vacinia* and *variola* are identical. Pus from the pustules of human small-pox was inoculated in cows, horses, dogs, and apes, and the result was an eruption very much like that of the human. The pus was then taken from these animals and re-inoculated in man, with a similar result. This is proof conclusive that *vacinia* and small-pox are essentially the same, and simply modifications of each other.

When vaccine virus is brought into contact with the abraded skin, no change appears for three days; but upon the fourth day the epidermis rises in the form of a small

papule, which increases upon the fifth and sixth days by the transudation of serum, and becomes upon the seventh and eighth days a vesicle. The tissue about the vesicle now becomes red, and the contents become a turbid whitish color. Upon the twelfth day the contents of the vesicle become purulent, and then desiccation sets in, beginning at the center and extending to the periphery, so that by the twenty-first day nothing but a dry scab remains. A comparison of the vaccine pustule with that of small-pox shows that both pass through their separate periods in the same intervals; that they are of similar shape, have a similar depression in the center, and microscopically they have similar histological elements.

Therefore, as they are identical, it is easy to understand why vaccination gives immunity from small-pox, since one attack of the disease renders a second unlikely, or, at least, limits the attack to a very mild form.

But now comes the question whether vaccination protects an individual during his whole life. Formerly it was supposed that it did, but statistics show that the immunity is only temporary. Hence re-vaccination is now practiced. In England a second vaccination is obligatory under the law. In Italy, children who have never been vaccinated are not admitted to any school, and boys at the age of twenty, when they enter the military service, are again vaccinated.

The vaccine virus is mild in its effects, and the immunity which it produces is only for a time. It is the duty of physicians to advise families to have their members re-vaccinated, and especially during the prevalence of a small-pox epidemic. No one ever denies the efficacy of vaccination, except, perhaps, those who are not thoroughly informed, for statistics and experience have proven its value.

The question, What kind of virus shall we use? also arises. We can use the virus taken directly from the pustule of the cow, animal virus, or that which is already developed upon a vaccinated human being, humanized virus.

Fricdinger, director of the Inoculations Institute in Vienna, has demonstrated that the animal virus is not so certain of effect as is humanized virus. The reaction following the use of animal vaccine is very powerful, while that from the use of humanized virus is milder. It is therefore advisable to inoculate children with the latter.

There are, however, certain dangers to be feared from the use of humanized virus, and the question whether such diseases as syphilis, tuberculosis, gout, rheumatism, and scrofula could be inoculated from humanized virus becomes a pertinent one. Experiment and experience have shown that when two infectious poisons come into contact, they tend either mutually to destroy each other or the more powerful one will predominate and produce its characteristic symptoms. If vaccine virus be mixed with that taken from the hard chancre, the result may be either a hard chancre or a vaccine postule, but never a modification of either. Professor Sigmund in his lectures said that he had never seen a case of syphilis produced by vaccination, and his statement finds apparent confirmation in the following: Two children were once inoculated with vaccine taken from another child. The resulting pustules became very sore, much to the anger of the parents, who accused the physician with having produced syphilis in their children. No further manifestations appeared, however, and the so-called syphilitic sores amounted to nothing more than *Vaccinia ulcerosa*. However, in spite of Professor Sigmund's opinion, cases are upon record in which hard chancre have developed from vaccination, and were followed by the other symptoms of syphilis. Tossoni* refers to a case, which occurred in a small town near Cremona, in which a child, whose father had been syphilitic, was vaccinated, and supplied the vaccine for the inoculation of sixty-four other children. Some of these children had resulting hard chancres, followed by syphilis, which was in turn transmitted to their mothers and nurses.

* *Gazetta Medica di Milano*, 1843.

In 1850 Wegeler referred to an incident which occurred in Coblenz. Twenty-six people were vaccinated with virus taken from an apparently healthy child; four weeks afterwards nineteen of these people had hard chancres in the place of inoculation, followed by symptoms of syphilis. The child who supplied the virus was attacked, within a few days of its vaccination, by syphilitic erythema, and died of syphilitic cachexia. Another case happened in Bavaria to Dr. Hübner, who inoculated thirteen children with virus taken from an apparently healthy child of three months of age. Eight of these thirteen children got syphilis, and the child from whom the virus was taken showed, after some weeks, the symptoms of syphilitic cachexia and died in consequence. Lecoque* relates that two soldiers of the French army were inoculated with virus taken from the arm of a companion, who three months before had had a hard chancre—a fact which had not been known. Within eight or ten days the two inoculated soldiers had hard chancres in the places of inoculation, followed by all the usual phenomena of syphilis.

Hebra and Sigmund maintained that, in such cases as those above referred to, the pustule which caused the contagion was not a vaccine pustule at all, but was syphilis. But this can not be sustained, because not all the children in any given case were infected with syphilis, which certainly would have resulted if the original pustule had been syphilitic.

Vaccine lymph is not altered in its nature by passing through a syphilitic organism, but has the same effect upon a person afflicted with that disease as it has upon one who has never had syphilis. Small-pox, measles, etc., always produce their peculiar symptoms in a syphilitic. But the vaccine lymph may have its effects modified by, or rather can be mixed with, the disease, carrying elements, such as pus and blood, of syphilis; and this mixed virus, when

* Gazette Hebdomadaire, 1860.

inoculated upon another individual, may produce syphilis, as well as vaccinia. We have already stated that Pellizzari, of Florence, inoculated three students with the blood taken from a syphilitic individual; but only one of the students got syphilis, showing very clearly that the blood is not always capable of transmitting the disease, although it may do so. The experiments of Pick and Kraus, however, have shown that when the serum taken from a syphilitic vesicle, bulla, etc., is inoculated upon another individual, syphilis results, and it is not an improbability to suppose that lymph taken from a vaccine pustule in a syphilitic may produce syphilis. It is also possible that a scratch or other wound in a syphilitic individual may, in some of the cases reported, have been mistaken for the vaccine pustule, and thus the mistake be made.

It is, therefore, recommended, in view of the foregoing facts, that when one wishes to use humanized virus, not only the person from whom the vaccine lymph is to be taken, but also the parents, should be carefully examined for latent syphilis; for it would certainly be a very undesirable thing to inoculate an individual with syphilis in order to protect him against small-pox.

The ideas, so prevalent among the laity, that the other diatheses—such as scrofula, gout, etc.—may also be transmitted, are of no importance whatever, and may be disregarded.

Vaccination may be practiced at any time, even during the first fifteen days of life, if an epidemic of small-pox be raging at the time. If no epidemic be present, any time after the first forty days of life is perhaps preferable to an earlier date. It may be practiced at any time of the year. The operation is not painful at all, as it consists in slightly scratching the epidermis, and on the discovered Malpighi layer applying the virus, so as to produce absorption. The course of the vaccinia is usually very easy, and in fifteen or twenty days is all over, without any reaction or disturbance.



In some cases we have general reaction, accompanied also by peculiar anomalies, which are either spread on the whole body or limited to the place of inoculation. Among the first it is necessary to mention the *Roseola vaccina*, which affects the whole body in the form of large, red, erythematous spots. The spots last on the skin no longer than twenty-four or forty-eight hours, and then disappear. Sometimes a vesicular eruption accompanies the spots. This does not last long, and has no influence on the course of the vaccination.

Anomalies are observed on the place of inoculation. Sometimes, instead of a vesicle and pustule on the inoculated place, a kind of papula arises, which has the appearance of a wart. This has been called *Vaccina atrophica*. At other times, on the inoculated place, after the pustule an ulcer results, known under the name of *Vaccina ulcerosa*. Very seldom gangrene has been observed following vaccination—a gangrene which, spreading on the surrounding skin, has caused the death of the patient, with septico-demic symptoms. Erysipelas, too, has been observed as a result of vaccination, and sometimes has put in danger the life of the patient.

MEASLES.

Measles is commonly a mild disease, and only becomes dangerous to life when a complication on the part of some internal organ occurs. It is, however, very contagious, and children who are exposed to it are almost certain to take the disease.

Hallier* found micrococci in the blood of patients suffering with measles, and concluded, therefore, that they were the cause of the disease.

Salisbury† discovered a fungous growth very similar to that found in animal excrement, and which he called *Mucor mucedo*. He believes that the disease may originate from rotten straw, because of the presence of this growth.

* Archiv. f. Dermatologie and Syphilis. 1869.

† American Jour. Med. Sciences, 1866.

Klebs* obtained the micrococci from the tracheæ and the blood of persons having measles, and tried to cultivate them, but failed in the attempt. Inoculations were tried with the blood and the epidermic scales taken when the disease was at its height, but the results were not satisfactory.

Mayer succeeded in inoculating healthy children who lived at some distance from the diseased one, and in a locality in which measles did not exist. He took the mucus from the nose of the one, and rubbed it into the nose of the other. This mucus was taken at the acme of the eruption, was carried in a capillary glass tube, and applied upon the same day in which it was obtained. The prodromal symptoms of measles began in one case in eight days, in another in nine days after the inoculation, and were followed by fever and eruption of a regular but mild type.

It will be seen from the foregoing that the mucus of the nose or throat is necessary for the spread of the disease, and that the clothing, unless, perhaps, when taken directly from a patient with measles, and worn by another person, is not likely to transmit the disease. If the clothing be exposed for a time to the fresh air, there is no danger of transmitting the affection. There is, however, danger of contagion as soon as the nose and throat symptoms appear; and thus it is that the disease spreads so rapidly among children in schools and churches. Whenever the disease appears in an institution where there are a number of children, the affected ones should be immediately removed; and, indeed, the institution should be closed for a time, and the affected children not allowed to return for some time after all symptoms of the disease have disappeared.

There is no certain means of preventing measles. Inoculation has been tried, but it did not lessen the severity of the disease, nor prevent complications. Camphor and sulphur, which at one time were so highly praised, have also been used without result.

* Würzburger Verhandlungen. 1873.

Measles appear from time to time in the larger cities in an epidemic form, sometimes very mild; at other times very severe, and followed by dangerous complications. These epidemics occur much more frequently in Autumn and Winter than in the Spring and Summer seasons. Climate and length of interval between epidemics seem to exert an influence upon the severity of the disease. When epidemics succeed each other rapidly the disease usually runs a mild course; but when they follow each other at long intervals the disease is generally severe. In general it can be said that in warm climates measles run a milder course than in colder ones, chiefly because of the liability to complications on the part of the respiratory organs. The affections usually consequent upon this disease are bronchitis, pneumonia, and whooping-cough.

SCARLET FEVER—SCARLATINA.

This is a much severer disease than measles, and its contagiousness is just as great. The sad experiences of Children's Homes, hospitals, factories, and jails have demonstrated that the presence of but a single case, in spite of all care to the contrary, is apt to be followed by a general infection. This is true also of the family circle; and we can frequently trace the path of the contagion throughout the wards and along the streets of a city.

No result has been obtained from inoculations, and yet we can assert, without the fear of successful contradiction, that the disease is due to the presence of a contagious virus, which, like the virus of small-pox and syphilis, is developed only from the disease itself.

Scarlet fever is continually occurring in a sporadic form in the larger cities, and consequently there are always centres of contagion from which the disease spreads—sometimes markedly, at other times not in so pronounced a manner, depending upon climatic and other influences. The virus of scarlet fever retains its contagious properties for a long

time, and hence individuals may become infected long after the patient who has the disease becomes well. H. Hebra relates a startling case, illustrative of this longevity of the virus. A boy, the child of people who owned a castle in Bohemia, died of scarlet fever in this castle. After the child's death, the remaining members of the family went to live in Hungary, and remained there three years, the castle during this time being shut up. One year after the removal to Hungary, another child was born; and when this boy was two years of age the family returned to Bohemia. The little fellow was put into the same room and the same bed in which his brother had died three years before, and in a few days he, too, took scarlet fever, and died. No other member of the family took the disease.

Hallier and Tschamer have found in the blood of scarlet fever patients a micrococcus which belongs to the class fungi, and which Hallier called *Tilletia scarlatinosa*; but inoculations with these micrococci were not followed by any valuable results.

Scarlet fever is apparently more liable to produce contagion during the period of desquamation; consequently the greatest care is required with regard to all articles of clothing then used by the patient. This clothing must be thoroughly washed and fumigated before being again used. The furniture of the room, especially carpets or other woollen fabrics, must be put through the same process, and the rooms themselves thoroughly cleansed and disinfected.

Numerous remedies have been recommended, from time to time, for the prevention of scarlet fever. Belladonna was loudly praised as a prophylactic by Hufeland and Hahnemann. Daily doses of the mineral acids well diluted were advocated by others. Webster proposed the daily washing of the body with vinegar and water, and Dehne suggested the daily inunctions of the body with melted suet. Finally, Buekner has recently recommended the use of arsenic. Unfortunately, however, none of these remedies have stood the

test, and we are forced to confess that the best prophylactic is a complete isolation of the patient and thorough disinfection.

PSEUDO-EXANTHEMATIC ERUPTIONS.

Under this title are included those eruptions of the skin which come out during the course of other virulent diseases, but do not, however, run regular courses nor have distinct periods, as the true exanthems; that is, the eruptions are not the most characteristic symptom of the disease which they accompany. They are, however, of such interest as to require mentioning. They are: Roseola typhosa, erysipelas, malleus or glanders, and Pustula maligna, or malignant pustule.

ROSEOLA TYPHOSA.

Typhous fever is commonly divided into two forms: *Typhus exanthematicus* and *Typhus abdominalis*, or typhoid. It is the result of a blood-poison or virus, which recognizes for its cause the typhoid bacillus of Eberth, and enters the system through the stomach in the drink or food. The question as to whether these two forms are essentially the same disease does not concern us here. During the course of typhous fevers rose-red spots, of the size of a split-pea to a one-cent coin, occur on the surface of the skin. They are not constant in typhoid, but are almost always found in *Typhus exanthematicus*; indeed they gave name to the latter disease. They usually appear about the end of the first week in both forms of typhus; they are not, at first, elevated above the surface of the skin and disappear upon pressure, to reappear, however, shortly after the pressure is removed. The number of these spots has no relation to the severity of the disease.

In *Typhus abdominalis*, or typhoid fever, these spots appear usually upon the inferior portion of the chest and over the abdomen, and during the second week their color usually becomes more intense, and they may become slightly elevated about the center. They usually disappear about

the beginning of the third week, and rarely last until the fourth. In Typhus exanthematicus, on the other hand, these rose-colored spots disappear during the second week only in the very mildest cases; but in the severer cases they remain at least two weeks, are of a deeper red, and do not disappear entirely under pressure, but leave a stain. This stain is due to pigmentation produced by the presence of hæmoglobin, which is extravasated into the surrounding tissues. In very bad cases extravasations of blood take place, and the roseola spots become true petechiæ.

ERYSIPELAS.

Erysipelas is sometimes referred to as a dermatitis or simple inflammation of the skin, but it belongs to the contagious diseases, and is only the expression of a constitutional impression, and therefore should be classed among the pseudo-exanthems. It is characterized by a rapidly spreading inflammatory process upon the surface of the skin and mucous membranes; by redness of the surface; by fever, pain, burning sensations, and œdema and swelling of the skin. It is preceded usually by prodromal symptoms, such as a general *malaise*, loss of appetite, vomiting, diarrhœa, joint-pains, chill and fever. It begins chiefly at the margins of wounds, however slight, suppurations, etc. The edge of a wound begins to look red and the prodromal symptoms are noticed. This redness spreads over a limited area, becomes circumscribed, and the disease is then known as *Erysipelas circumscripta*; or it may spread generally over a surface, and become *Erysipelas migrans*; or it may cover various portions of the surface, not spreading by continuity, but jumping from one place to another. This redness varies in intensity from a rose-red to a bluish-red, and disappears upon pressure, immediately to return after the pressure is removed. Small vesicles sometimes appear upon this red surface, and may increase to the size of bullæ or blisters, which burst and discharge serum. Crusts may thus be formed. The

fever indicates the intensity of the disease and may go to 104° Fahrenheit or higher. The œdema may become so marked—especially about the eyelids, the ears, the prepuce, and the scrotum—as to disturb function.

In cases in which large abscesses or suppurating wounds exist, erysipelas becomes a symptom of pyæmia, and is then very dangerous. It usually, however, has a favorable termination, the fever subsides, the redness disappears, desquamation and temporary loss of the hair occur, and recovery follows.

The cause of erysipelas is a virus which finds lodgment in a broken surface. Hebra speaks of the disease as being always produced by the decomposition of pus in a badly dressed wound. He thought this decomposition of pus was accompanied by fungi, which did not arise when there was free evacuation of the pus, or when the wound was kept clean.

Koeh, Klebs, C. Hunter, Lukomsky, Orth, and Fehleisen found bacteria and micrococci, and maintain that these micro-organisms are the cause of the disease. Billroth, Ehrlich, and Tillmann believe the bacteria are produced by the decomposed pus, and that the reabsorption of this pus with the bacteria produces the inflammation.

I have never seen erysipelas arise without the existence of a preceding wound, but I have seen it arise from eczema about the nostrils, from the nodules of *Lupus vulgaris*, from syphilis, from *Lupus erythematoses*, and from vaccination. Erysipelas is sometimes developed as an epidemic, especially in surgical hospitals. In such cases it usually passes from bed to bed, so that it becomes necessary to remove all patients, and disinfect the wards before the disease can be stopped. Prophylaxis is of especial importance in erysipelas. The Lister dressing has been the means of greatly diminishing the number of cases of the disease. Perfect cleanliness of instruments, and, indeed, of every thing which has to be used about a wounded surface, is absolutely essential in preventing erysipelas.

MALLEUS—GLANDERS. (*German, Rotzkrankheit; Fr., Morve.*)

This is an infectious disease, which may be either acute or chronic, due to the presence of a peculiar contagious virus, and characterized by an eruption of pustules, necrosis of the skin and even of the internal organs, and a glandular enlargement. It affects animals of the equine class, but may be transmitted to man, and begins as small pustules, which rapidly increase in number and size, and may finally result in gangrene of the skin, with sloughing. In the chronic form the symptoms are usually not so severe, and, even after gangrenous spots have appeared, recovery may take place under appropriate treatment. Death generally occurs, with symptoms of septic infection. Inasmuch as there is nothing characteristic in the pustular eruption, the diagnosis is often very difficult; but when the patient has been about horses, and has the symptoms mentioned above, together with swelling of the glands and inflammation of the mucous membrane of the nose (Schneiderian), the diagnosis may be made.

Löffler and Schütz* succeeded in finding the bacillus of glanders in the shape of small rods, about the same size as Koch's bacillus of tuberculosis. This bacillus has been successfully cultivated and inoculated upon rabbits, guinea-pigs, and horses.

PUSTULA MALIGNA—MALIGNANT PUSTULE. (*Gr., Mîlzbrandkrankheit, Anthrax.*)

Malignant pustule is also a contagious disease, produced by the *Bacillus anthracis*, and characterized by phlegmon and subsequent gangrene of the skin. Man acquires the disease from the lower animals. The *Bacillus anthracis* is found in the lymphatic loculi of the corium, in the subcutaneous tissue, and about the blood-vessels, producing stasis and consequent necrosis of the tissues. It begins as a small red spot upon the skin, accompanied by intolerable

* Deutsche Med. Wochenschrift, 1882, No. 52.

burning sensations. The middle of this spot becomes elevated into a papule of dark, livid color; this papule changes within a few hours into a vesicle, which soon bursts, discharges its contents, and shows beneath a black, necrotic surface; this surface increases in extent, and new vesicles are formed around it, which go through the same changes as the first, and very soon there is a marked destruction of tissue. The disease may go to this extent without producing fever or a feeling of malaise in the patient. It may, indeed, go no further in its destructive course; the gangrenous slough may be thrown off, and recovery take place. Unfortunately, however, general infection may occur, with a fatal termination.

The virus or bacillus finds entrance to the system through a scratch upon the hands or face of those who handle horses or other animals, or who work among hides.

I once had under my care three cases of malignant pustule in one family. These individuals had eaten meat taken from an animal which had the disease well developed before being killed.

The treatment of this disease is altogether surgical. It is very important that the body of an animal which has died of this disease should be burned, because if the flies have access to the carcass they may become carriers of the contagion.

LEPRA GRÆCORUM.

This is a constitutional infectious disease, which is revealed on the skin in the form of bluish-red spots and tubercles. Leprous tubercles are developed along the course of the nerves, and cause alterations of sensibility, of motility, and of nutrition. The contagiousness of this disease was noted by the oldest writers, but no proof was given of the existence of a leprous virus. Armauer Hansen* was the first to demonstrate the presence of the *Bacillus lepræ*, and it has since been recognized by Ehlund, Heiberg, Bidencap,

* Virchow, Archiv., 79 Bd., 1880.

Neisser, and more recently by Cornil and Suehard, in all patients affected by this disease, and furthermore by Dainsh and Neisser, who successfully inoculated cats and dogs with it.

This bacillus, according to Neisser, is entirely specific, and has been found only in lepra. The micro-organisms are easily seen in the sections of the affected skin colored with aniline, as thin bacilli, about half a red-blood corpuscle in length and one-fourth wide. They enter into the cells, where they form their colonies.

The transport of lepra occurs in a similar way to syphilis. A scratched or wounded place is the point of entrance of this virus. The bacilli, once entered into the skin, spread into the system, producing infiltrations, with all the anatomopathological alterations. The time which elapses between the first entrance of the bacilli into the system and the outbreak of the disease is difficult to establish, having no prodromic symptoms, as in syphilis.

The symptoms of lepra are to be considered in two separate groups: 1. Symptoms which are produced directly by the virus on the attacked places and on the nervous ramifications; and, 2. Symptoms consequent to the anatomopathological alterations—calling the former primaries, and the latter secondaries.

Primary symptoms of lepra appear on the skin in the form of large-sized exanthematic spots, accompanied by attacks of intermittent fever. After some time the spots disappear on the body, persisting, however, on the face and on the extremities. On these persisting spots, after some time, numerous protuberances the size of peas, or a few large tumors, are developed; or, as in other cases, an equal hypertrophy of the skin of the face and of the extremities takes place. In the first case the skin becomes dark-reddish in color, and is covered with nodules resembling warts, scattered without any order on the face, on the neck, and also on the hands. In the second case tumors the size of a walnut, or larger, are seated on the forehead, on the eyebrows, on



LEPRA TUBEROSA.

FROM A PHOTOGRAPH BY PROFETA, IN PALERMO, AS GIVEN BY HANS HEBRA.

the nose, on the cheeks, on the lips, etc. In the third case, the skin is infiltrated and thick, slightly scaly, and shows deep abnormal furrows, which give to the face the most peculiar appearance, described as satyriasis and leontiasis, from the resemblance which it has to the face of a satyr, or the face of a lion. The legs, arms, and hands are also affected either with tubercles, called *Lepra tuberosa*, or with large-sized, brown-red patches, *Lepra maculosa*, which under the pressure of the finger disappear, leaving a yellow-brownish pigmentation. With these symptoms, the lymphatic glands in the submaxillary region in the armpit and in the groins are swollen and hardened.

In some cases lepra remains for years in the same condition, without noticeable changes; in other cases the infiltration is reabsorbed, and in some places the skin returns to the normal condition; but in still other cases decay of the infiltrating elements takes place, and ulcers are found, constituting *Lepra ulcerosa*. The ulcers sometimes do not remain limited to the superficial tissues, but affect the muscles and bones, and result in the destruction of the nose and of the fingers, *Lepra mutilans*.

The mucous membranes are affected by lepra, as the cavity of the mouth, the pharynx, and the larynx, causing sometimes destruction of these organs, and the death of the patient. Leprous tubercles are developed on the Conjunctiva palpebralis and bulbaris, sometimes causing the loss of the eye.

The liver and spleen have been found also the seat of these tubercles. Interesting are the alterations caused by lepra bacilli on the nervous ramifications. The changes consist in a neoplasia of the interstitial connective tissue, and of the perineurium, which consequently causes the atrophy of the nerve. Before reaching this point the process is a long one, with alternations of better and of worse.

The secondary symptoms are remarked in the sensibility, which is greatly increased, a hyperæsthesia. The slightest

touch on some regions of the skin causes pain, and sometimes neuralgia of the skin exasperates the patient. There are a hyperæsthesia and neuralgia, which last for hours or days, and then disappear, returning at intervals with different intensity. The hyperæsthesia gradually diminishes, and after some time the skin first loses some of its sensibility, and after a while becomes entirely anæsthetic. On the affected regions the patient can be cut or burnt without its producing any pain.

The nerves presiding over nutrition being affected by the same alterations, are the cause of trophic disturbances. The distribution of the pigment is altered, and at times we see pigment hypertrophy, and occasionally atrophy or vitiligo. In the same way a blebs eruption takes place in that form described as *Pemphigus leprosus*.

The muscles also affected, cause difficulty of movements, but only seldom a complete paralysis occurs.

All the above mentioned symptoms are accompanied with a general feeling of lassitude, and an impossibility of attending to any occupation. In the first year attacks of fever at every new eruption make the patient weaker and cause increased suffering. In the case of *Lepra ulcerosa* or *mutilans*, septicæmic attacks are liable to end the miserable existence of the patient.

Lepra is endemic in several countries, and this is the reason why many writers have attributed this disease to climatic or telluric conditions as a cause, while others believe it to be exclusively hereditary.

In Europe lepra is found in Norway and Sweden, in places near Finland and the West Russian provinces. Cases are found in Spain and Portugal near the sea-coasts, and also in Sicily, Greece, and Turkey, occasionally in Hungary and Galicia. In Africa lepra appears in Morocco, Algiers, Tripoli, and Egypt, as well as in Guinea, Mozambique, Abyssinia, and Madagascar. In Asia the countries more affected are the Caucasus, Asia Minor, Syria and Palestine, Arabia,

Persia, India, China, Japan, and Kamtchatka with its surrounding small islands. In Australia, New South Wales, and New Zealand, and in America cases are found, in Mexico, Brazil, and in some of the northern republics of South America. It is remarkable that the affected places are always near the sea-coast, and the interior is entirely free. This shows that the disease is imported on ship-board, and comes only by way of the sea.

It is not yet clearly established whether lepra can be transmitted through exhalations from the patient, but it is certain that by the contact of the leprous products, as pus and saliva, lepra is transmitted from one to another. Whether lepra is miasmatico-contagious like Asiatic cholera we do not certainly know. In such a case the dejections of the patient and the buried bodies of leprous subjects could be the cause of the infection.

Heredity seems to play a great rôle, but the children at an early period never show leprous symptoms. It may be that it is transmitted to the offspring in its intra-uterine life, so that it can be transmitted by contact at a later age.

So far, lepra can not be cured, and can only be relieved. This can be done by using mercurial inunctions as in syphilis, and locally on the tubercles tincture of iodine or iodoform, etc. Reconstituents internally are required to improve the nutrition of the patient, and the resulting ulcers must be treated with antiseptic remedies.

To prevent lepra, the best means is to prevent the contact of healthy people with the diseased. This is practiced in several affected regions in so barbarous a way as to make the existence of those unfortunates the most unhappy. The pus discharged from leprous sores is full of bacilli, and there is danger of its spreading the disease.

CHAPTER VII.

PHYSIOLOGICAL INDIVIDUAL CONDITIONS.

AGE.

WHILE age of itself can not be considered a cause of disease, there is in it, nevertheless, a disposition or condition favorable to the development of certain diseases. Age, like sex and habit, so alters or vitiates the resistive power as to render the occurrence of certain diseases a possibility, or, in other words, different ages mean different physiological conditions, and these mean different pathological dispositions.

This influence of age in the production of disease is remarkable in the domain of Diseases of the Skin; so remarkable, indeed, as to be worthy of some consideration.

Certain diseases are peculiar to a particular age and are never found except at that period of life; others, again, may occur at different ages of the individual, but present different symptoms each time.

SCLEREMA NEONATORUM.

This disease, which is peculiar to the newly born, as its name indicates, consists in an induration or, at times, an oedematous infiltration of the skin, similar to the scleroderma of the adult.

A few days after the birth of a child, it is noticed that the soft skin becomes hard; that the features become distorted and fixed; the joints can not be bent, or if bent they remain so; and that these symptoms steadily increase to an extraordinary degree. The skin grows pale, and this paleness increases until a cadaveric hue is established; the superficial temperature sinks gradually, but surely; severe symp-

toms on the part of the internal organs supervene, such as pneumonia, bronchitis, and intestinal catarrh, with colliquative diarrhœa; and finally death occurs.

Lanzer * has studied the pathology of this disease, and holds that the fat of a child is concentrated in the Panniculus adiposus, and bears the proportion of five to one in comparison with the Panniculus adiposus of the adult; that in the child the fat has different chemical qualities from that of the adult, containing thirty-one parts of solid fatty acids in one hundred parts of fat, while the fat of an adult has but ten parts to the one hundred. He has also shown that the fat taken from a child at the temperature of a room is white and hard like tallow, and does not begin to melt under 45° centigrade, while the fat taken from an adult at the temperature of a room is always fluid, like cod-liver oil, and only becomes hard when the temperature is reduced to 0° centigrade, or freezing point.

From these observations Lanzer comes to the conclusion that the hardness of the fat is the cause of sclerema. Sclerema affects well-nourished children, beginning in the extremities and proceeding to the chest.

According to Lanzer, a low temperature is the only cause of this disease; and this view was apparently confirmed by Cruse, who reported a case occurring in a child that had been exposed to an extreme degree of cold. It would seem, therefore, if this view be correct, that a very ready and speedy method of treatment would be found in warm baths; but experience has shown that a warm temperature does not alter the condition of the fat. It has been demonstrated that the oleine of the fat becomes oxidated very rapidly, being thus changed into stearine and palmitin, and these can not be returned into the fluid condition until such a degree

* Ueber die Chemische Zusammensetzung des Menschenfettes in Verschiedenen Lebensaltern. Sitzb. d. Kais. Akad. der Wissenschaften LXXXIV, Bd. 1881, Juni; und Beitrag zur Kenntniss des Scleroma Neonatorum, Wr. Med. Presse, No. 44 und 45, 1881.

of heat has been applied as could not be borne by the living organism. We must therefore conclude that sclerema is due to the oxidation and reabsorption of the oleine, and the consequent production of palmitin and stearine, which are not again soluble in the animal economy.

It need only be added that this disease is never found in grown children. It is peculiar to the newly born.

In infants the circulation is very active, the skin delicate, sensitive, and abundantly supplied with blood, the lymphatic and glandular system very active, and the nervous system exceedingly excitable and impressionable. On account of these facts, infants are particularly liable to certain diseases of the skin.

On account of the great vascularity, the cutaneous glands are very active, and accordingly children are subject to the disease seborrhœa. This affects chiefly the scalp, and arises from the fact that at birth the head is covered by the Vernix caseosa, a collection of fatty matter and epidermic scales. This is often allowed to remain upon the head because of a superstition among the ignorant that it should not be removed, and so it accumulates and takes on a dirty, yellowish hue. Upon removing this crust the scalp is found to be red, and the openings of the ducts of the sebaceous glands are red and enlarged, and possibly an eczema may be present. This eczema is the result of the presence of this irritating mass of fat, dirt, epidermis, and perspiration, the crust above referred to, and may spread all over head, face, and neck.

At other times, when cleanliness is not strictly observed, especially about those places where folds of skin lie closely together, an *Erythema intertrigo* may result. Cloths wet with urine are allowed to remain upon the child, and the acid urine irritates and produces the redness of erythema between the legs and upon the genitals. Erythema intertrigo, in the form of an intensely vivid redness in the anal region and on the superior portion of the thighs, appears as a symptomatic affection. This is often accom-

panied with enterocolitis, which so frequently attacks little children. In these cases, erythema is the result of an inflammation of the mucous membrane of the bowels, which extends to the skin, from the simple reason of the continuity of these membranes. When the intestinal affection is improved the erythema soon disappears.

Exanthematous eruptions are so common among children as to have received the name of children's diseases. The delicacy of their skin and the activity of their circulation render children much more liable than adults to the contagion.

At the time of dentition roseolar eruption occurs in the form of small, roundish, red spots, accompanied with a feverish reaction. This has been called *Roseola infantilis*, and is very often caused by the presence of worms in the intestines, or by some digestive disturbance.

From this same delicacy of the skin and pronounced vascularity, eczema, in the shape of impetigo, or pustular eruption, is apt to take place. These pustules burst, their contents flow out upon the surface, and partially dry, thus forming crusts, which, because of the presence of fat in the secretions of the skin, become of a yellowish color, and the disease receives the name of *Melita gra flavescens*. Eczema, as a rule, affects the scalp and face of children more frequently than it does any other part.

At about three years of age certain children begin to show, especially upon the skin of the extremities, small papules, which are accompanied by intense itching, a disease known as *Lichen urticatus*. It is persistent and recurrent, and finally leaves the skin rough, irritable, and frequently with a chronic papular, itching eruption, a prurigo.

Early in life, symptoms of Syphilis hereditaria are apt to appear in the form of macules, papules, and pustules. Ichthyosis also begins very early in life, and usually, when the third year has been reached, shows itself as Ichthyosis simplex, or Ichthyosis striata.

At a later period of life *Lupus vulgaris* appears, affecting the nose, cheeks, hands, etc. Before the third year of life *Lupus vulgaris* is a great rarity; but it usually commences with puberty, and rarely begins after the twentieth year. *Lupus erythematosus*, upon the other hand, seldom appears before the eighteenth year—its usual time being between the twentieth and fortieth years, and is scarcely ever observed in old age. When it is then present, it had begun earlier in life. *Psoriasis* rarely appears before the sixth year, and is most common from the twelfth to the fifteenth years.

In adult age, when the organs have reached their perfect development and the functions are performed in their full strength, the organic activity is at its height, and the skin diseases which we find consist more in disorders of the nutrition of the tissues. The circulation of the blood, calm and regular, dominates the whole animal economy. The lymphatics, which in infants play so great a rôle, in adults diminish their activity, and the diseases which affect the skin are characterized by an inflammatory process, with abundant cellular infiltration and by alteration of the nutrition of the cells.

PITYRIASIS RUBRA.

This is a disease of adult life of unknown origin, and is characterized by a peculiar redness of the whole surface of the skin, and an abundant scaly desquamation. Although it was mentioned by Bateman, Alibert, and Devergie, it was confounded with *Eczema squamosum* and other squamous affections of the skin, and it was only put into its proper place, and its symptoms described by Hebra.

No vesicles or papules appear on the skin of these patients, but only a diffuse redness, which is more or less deep, according to the age of the disease. The epidermis is loose, in thin scales, and never remains attached to the skin. When the skin is compressed by the fingers the redness

diminishes, but a yellow color remains, which is due to the presence of an abundant pigmentation.

After the disease has persisted for some time, the skin shows numerous furrows, and looks like shagreen leather; it is much thinner than the normal skin, and is bound down to the underlying tissues, giving an immobility to the features and the joints. The hair falls out, and the skin is always dry.

No patient has ever recovered from this disease, and every case has terminated fatally, either from tuberculosis, inflammation of the lungs, or marasmus. Auspitz referred to one case which recovered by the internal use of arsenic.

The microscopic observations of H. Hebra revealed in two cases chronic infiltration of the skin. Infiltration cells were spread into each layer of the skin in abundant masses. Abundant pigment of yellow-brownish color filled up the Rete mucosum, which appeared very thin. The blood-vessels were surrounded by cells, and he never succeeded in finding a sweat or a fat gland, which fact explains the dryness of the skin.

This disease has its origin in a hyperæmic condition of the skin, with infiltration; which, on account of the trophic disturbance of the tissue, causes the atrophy of the skin, as is proved by the abundance of elastic tissue found in the corium.

LICHEN RUBER.

We mention this other eruption, which affects especially individuals between twenty and forty years, called *Lichen exudativus ruber* by Hebra, and its other kind *Lichen planus* by Wilson. Here we have an eruption of brown-red nodules, small papules close together, and subsequently producing desquamation. The disease seems to begin in the hair follicles, and was compared by Auspitz to psoriasis, because in Lichen ruber the process which begins in the follicles is just the same as that which in psoriasis begins in the surface of the skin. Lichen ruber is essentially chronic, and begins usually in the extremities, and spreads thence to the trunk

and head. The papules never change into vesicles, but remain in their original condition; hence there is never a mixture of papules, vesicles, and pustules. The nails become scaly and fragile. The patient suffers continuously from itching, which prevents sleep, and may cause the patient to become marasmic.

The microscopic examinations of Hillier, Neumann, and Biesiadecki have thrown some light upon this strange process. The cells of the epidermis and of the Malpighian layer are increased in number, and those of the latter penetrate the spaces between the papillæ. The papillæ are enlarged, together with their blood-vessels, and their tissues are filled with new cells. The excretory ducts of the sweat-glands and the hair follicles are enlarged, and also filled with new cells. These new cells at first cause hyperæmia by the mechanical irritation of their presence, and afterwards so press upon the blood-vessels as to shut off the nutritive supply, and thus produce atrophy.

Lichen ruber was formerly considered incurable, but Hebra proved that arsenic is a remedy by which the disease is cured. The arsenic must be taken in the same way and with the same precautions as in psoriasis.

LUPUS ERYTHEMATOSUS.

The skin disease described under this name by Cazenave has this peculiarity, that it shows itself always at an adult age. So far, its origin is not clear, and we therefore take occasion to mention a few of its characteristics while speaking of the influence of age. *Lupus erythematosus* begins in the form of a red spot of the size of a lentil, at times elevated on the surface of the skin in the form of a flat papule. The papula extends its periphery, and then shows in the center a depression of much lighter color than at the edges. In the regions where the sebaceous glands are abundant, fatty scales are found, which go deep into the excretory duct of the gland in the shape of a cork. In the places, however, where

no sebaceous glands exist, as on the tips of the fingers, the color remains the same, and becomes always more intensely red and livid, and on account of œdema the fingers become swollen in the shape of a drumstick.

Sometimes the eruption is limited to a few spots, though sometimes they appear in large numbers. In both cases the spots grow peripherically on their edges. In one case the eruption continues limited to a few spots; in other cases the spot grows rapidly in large proportions, with inflammatory symptoms, accompanied by general reaction, and puts into danger the life of the patient. This fact led Kaposi to distinguish Lupus erythematosus as of two kinds, *Lupus erythematosus discoides* and *Lupus erythematosus aggregatus*.

In Lupus erythematosus discoides the spots remain for a long time without remarkable change; but after several months the spots grow in the form of a circle or of an ellipse. The edges are always of an intensely vivid red color, and the center depressed, whitish, in the form of a scar, sometimes covered with whitish fatty scales. At other times the sebaceous glands are enlarged, very active in their function, and showing black comedones (*Seborrhœa congestiva*—Hebra).

Lupus erythematosus principally attacks the face, and especially the nose and the checks, where in its form it presents the appearance of a butterfly. It affects, too, the scalp, producing atrophy of the hair follicles, with permanent loss of hair. The lips show Lupus erythematosus, and are covered with brown, dark crusts and fissures; the eyelids and the auricula are not spared. In the extremities we see Lupus erythematosus in the fingers and toes, and sometimes on the knees and elbows. The discoid form seldom appears in other places of the body.

Lupus erythematosus discoides begins as a local disease, and runs its whole course locally, without in the least affecting the constitution during the whole duration of the malady. Sometimes it proceeds from a seborrhœa of the nose and face, which has its origin in the scars of small-pox.

In cases where Lupus erythematosus takes the form of aggregatus, then the symptoms have a different importance. At times an erysipelas called by Kaposi *Erysipelas perstans faciei*, spreads over the whole face, and lasts for a long time, causing the swelling of the cervical lymphatic glands. At other times it takes the proportions of an acute general eruption, producing a decided sympathy in the whole organism. There is high fever, with a typhoid state, pleuro-pneumonia, and affections of the joints, which have an intimate relation to the inflammatory process of the skin.

Lupus erythematosus has been considered a result of a neoplasia of the skin, and ranked with Lupus vulgaris. Kaposi has remarked that the infiltration is due to an inflammatory process affecting the stroma of the skin. In my microscopical specimens I have found a remarkable hypertrophy of the epidermic cells and of those investing the sebaceous glands and the hair follicles. The papillæ of the corium are enlarged, containing in their meshes small, inflammatory cells. The most striking feature is the hypertrophy of the fascicles of the fibres of the connective tissue. The loculi formed by the fibres of the connective tissue are enlarged and ought to contain intercellular fluid, which is the cause of the hypertrophy of the histological elements. These observations serve to show that Lupus erythematosus must be referred not to a neoplasia, but to an inflammatory process.

But as yet we have not explained the cause of this disease. Generally the different ætiological factors of Lupus erythematosus are of no account; as, for instance, chloroanæmia, or disorders of menstruation, etc., when we see this affection in healthy and stout people.

In the examination of the scales taken from spots of Lupus erythematosus I found epidermic cells greatly enlarged, containing many round corpuscles, appearing to be micro-organisms. In sections of the skin affected with this disease, after having been boiled in a solution of caustic

potash and stained in methyl violet, we can see groups of round corpuseles among the epidermic cells, and also among and inside of the fibres of the corium.

There is no doubt that micro-organisms exist in *Lupus erythematosus*. The question now is to try the cultivation of them and inoculation. Reasoning from analogy, we think that in the presence of the cocci we have the essential cause of this disease, and thus its nature is clearly explained.

In the treatment of *Lupus erythematosus*, internal remedies are of no effect on the locality. The medication, therefore, in ordinary cases is limited on the place. The use of soft-soap to dissolve the scales, and the application of *Unguentum hydrargyri* has given good results. Caustics have been used profusely, such as iodide of mercury, trichloroacetic acid, pyrogallie acid, chloride of zinc, caustic potash, etc. In the same way the spots of *Lupus erythematosus* have been scraped off with the sharp scoop. We dislike the use of strong caustics and of instruments in this disease, because, after having destroyed the affected skin, a scar remains, and very often around the scar the disease appears again worse than ever. The use of ichthyol in our practice has been attended with the best results, having effected complete recovery in three cases. Ichthyol has the faculty of indurating the epidermis, and of reducing the stasis on the underlying tissues. It is a very good anti-parasitary substance, absorbing oxygen from living organic matters. We mix ichthyol with *Unguent diachyl* (Hebra), in different proportions, from three to ten per cent, and apply on the affected spot, according to the action which we desire to secure.

In order to finish the treatment, once a day we brush the spot of *Lupus erythematosus* with a solution of ichthyol and collodion prepared according to the following formula :

R. *Natr. sulfo-ichthyol*,
Spirit. æther., āā gmm. 10.00
Collodion, gmm. 20.00

Scarification can be used while ichthyol is applied so as to diminish the stasis and facilitate the obliteration of the enlarged blood-vessels.

There are other diseases found in persons of adult age as well as among infants, but they are marked by different characteristics and symptoms. Eczema, which affects the face chiefly in infants, attacks the extremities in preference in the adult; instead of being an Eczema impetiginosum as in infancy, it is an Eczema rubrum, or squamosum, in adult life. Chronic eczema, ulcers of the legs, etc., are frequently produced in adult age by stasis in the abdominal organs and consequent difficulty of circulation in the extremities—a cause and its effects which are not likely to occur in infancy.

Measles and scarlet fever rarely attack the grown; and when they do attack the adult there is less severity or virulence.

Acne begins to show itself at time of puberty and frequently accompanies irregularities of menstruation in women.

Epithelioma of the skin occurs chiefly between the thirtieth and fiftieth years, and after the latter year is usually a reproduction of a pre-existent growth.

OLD AGE.

In old age the activity of the circulation is diminished, the superficial capillary blood-vessels do not receive a sufficient supply of blood, and consequently the secretions are lessened in quantity. The skin loses its oily matter and becomes hard, wrinkled, and dry. The organic functions are slow, and in cases of disease the reaction is very weak and not in proportion to the gravity of the lesions. At this age hemorrhagic affections of the skin are very frequent—affections which have their origin in disturbances of the circulation of the blood and in the easy rupture of the walls of the capillary blood-vessels. Willan described a form of *purpura* appearing only in old age, which he called *Purpura senilis*.

The seat of this hemorrhagic eruption is in the lower extremities, and from the frequent recurrence of the bloody effusion into the meshes of the tissue, the color of the skin becomes changed. Hæmatin, the coloring matter of the blood, is changed into hæmatoidin, which is insoluble and crystallizable, and remains in the tissues, producing a brownish pigmentation with a marbled appearance, or as large dark pigmented spots. We can see in these affections two kinds of hemorrhage: one in which some obstacle to the circulation produces increased pressure of the blood, followed by diapedesis, the hæmoglobin going out through the walls of the blood-vessels—a condition known as hæmoglobinorrhœa; another form in which there is rupture of the blood-vessel wall, and the blood goes out and stains the surrounding tissues.

These hemorrhagic spots occur in old age chiefly as the result of the peculiar condition of the blood-vessels known as atheromatous, in which the want of elasticity in the vessel wall because of the deposit of calcareous matter therein, causes the rupture of the blood-vessel. This condition is frequently the cause of apoplexy.

The skin of aged persons being dry and hard, with scanty Panniculus adiposus, is very often the cause of neurosis of the skin, known as *Pruritus cutaneus*.

The itching sensation, which is nothing else than a perverted sensitiveness of the sense of touch, causes fearful sufferings to the patient, obliging him to scratch himself. The pain of the scratching changes the sensation, and quiets for some time the sufferings produced by the itching. The patient sometimes scratches himself so deeply that blood flows, producing deep wounds in the skin. When the patients go to bed they suffer the most, and wound and tear their skin until, weak and tired, they fall asleep. Their rest is not good; very often they wake up on account of the unbearable itching sensation; their general health is altered, their mind is not at ease, and they become melancholic.

On the skin no very perceptible alteration occurs; no papules, no eruption of any kind, unless from excoriations produced by the action of the nails, or of the brushes used for scratching.

The cause of this affection we find in the alterations of the skin, described by Neumann as senile alterations. The skin, as we have already observed, in old age loses its freshness, and its corrugations show under the microscope a poor condition of its tissues. The fascicles and the fibres of the connective tissue are corrugated and turbid. It seems that the alterations of the connective tissue act on the last terminations of the sensitive nerves, and thus are the cause of the perverted tactile function.

Many lotions have been recommended for the relief of the itching sensation, but their result is not very sure. In my practice carbolic acid in different degrees of strength has given the best results. It may be prepared after the following formula:

R.	Acid, carbolic,	3j.
	Glycerine,	3j.
	Aq. lauri cerasi,	3ss.
	Alcohol,	3iij.

Misce, ad usum externum.

Sig.—To be used with a sponge at night.

On review we can see that age is not a true cause of disease; but we find in each period of life a certain predisposition to one or another disease. So, for instance, we never see psoriasis developed in a newly-born babe, and we never see measles or scarlet fever in an old man. The influence of age is sometimes apparent in the course and in the treatment of disease. When we study the diseases of the skin which affect a man at different ages, we find that the same disease is not always alike. Eczema in the child has an acute form, with numerous vesicles, an abundant serous secretion, and is accompanied with strongly marked symptoms. We find, on the contrary, eczema in persons of

old age with chronic symptoms, scanty secretions, covered with dry scales, and obstinate in recovery.

In conclusion, age, through special vitality and through special modifications of the organism, has an important influence on the production of skin diseases, on their course and on their treatment, often acting as a predisposing cause.

CHAPTER VIII.

PHYSIOLOGICAL INDIVIDUAL CONDITIONS.

SEX.

THE influence of sex in predisposing the human organism more to one than to another disease of the skin exists; but as yet no very exact observations have been made, or positive results obtained. If we compare the diseases of the skin in both sexes, we shall find that some affections are more frequent in woman than in man, owing to the influence of the generative functions. In the two separate sexes we see the result of pre-existing powers, which operate in the organism for the development and the disappearance of certain organs and of certain functions peculiar to each. This produces, as a consequence, a peculiar vitality of the special organization, with a morbid susceptibility of woman different from that of man.

There are also other differences in the anatomical, physical, and chemical constitution of the two sexes, which might have an influence on the production of the diseases. The intelligence, the nervous system, is much more excitable in woman than in man, and the weight of her brain is greater in proportion to that of her body. The respiration in woman is not so active, and the amount of carbon expired is less than in man. The blood of woman contains more water, and the corpuscles, the albumen, and the salts are

less in quantity. Therefore, all these differences, together with the sympathetic affection of the generative functions, produce a different predisposition to diseases of the skin in the two sexes.

It was formerly supposed that women were more inclined to eczema than men, but Professor Hebra found that in the General Hospital of Vienna two-thirds of the cases of this disease occurred in males, and one-third in females. Hospital experience, however, is not final in this regard, because women, as a rule, object to enter, preferring to be treated outside. In my private practice of one hundred and twenty-one cases of eczema, fifty-nine occurred in women, and sixty-two in men; in other words, the disease was just as frequent in one sex as in the other. During the past year I have treated, in my clinic at the Miami Medical College of Cincinnati, forty-six cases of eczema, of which twenty-eight were in women, and eighteen in men.

We must conclude, therefore, that nothing positive as to relative frequency in the sexes can be established in regard to eczema.

Acne vulgaris occurs more frequently in women than in men. In eighty-nine cases of this disease in my own practice, fifty-five were in women and thirty-nine in men. This experience is also supported by that of Hebra, and the relatively increased frequency was attributed by him to woman's peculiar functions. It is much more liable to appear at the time of menstruation, even when this function is entirely normal. Hebra mentions cases of women who never suffered from acne, except at the beginning of pregnancy, the eruption disappearing as soon as delivery took place.

Acne occurs frequently in chlorotic girls, with disturbed menstruation.

Psoriasis is found more frequently in men than in women, a fact which was established by Hebra, who probably had the largest practice in skin diseases, having an average of three thousand cases every year. He estimated that of these

three thousand cases, fifty were psoriasis; and of the fifty, thirty occurred in men and seventeen in women. My private records show sixteen cases of the disease, of which five occurred in women and eleven in men. The most of my cases were among people who were strong, healthy, and in good circumstances.

Lupus erythematosus not only affects women more frequently, but is usually more severe than in men. In ten cases of this disease, in one year, eight were women and two men. Only in two of the women disturbances of the womb were remarked.

A pregnant woman frequently shows anomalous distributions of pigment, producing discolorations or spots, which were called, by Lorry and Pleuk, *Ephélis gravidarum*. Fuchs called them chloasmata, a name still used to distinguish them from nævi, which are congenital spots, and from freckles or lentigines, which are acquired as small lentils upon the face, hands, etc.

Chloasmata are spots of different sizes, produced by accumulations of pigment in the Malpighian layer, the overlying epidermis being healthy, and never showing any desquamation or other change. I call attention to this want of desquamation because, for a long time, chloasmata were not distinguished from Pityriasis versicolor, a disease characterized by brownish spots upon the surface of the skin, and due, as Eichstedt demonstrated in 1846, to collections of the parasite *Microsporon furfur*.

Chloasmata may also appear during the presence of diseases of the womb, and, indeed, are frequently known as *Chloasma uterinum*.

Sometimes these spots appear as pigment discolorations all over the forehead, even to the roots of the hair, of a yellowish-brown color, which may be uniform or streaked diagonally with white, or intermixed with spots of a lighter color. At other times there are brownish spots upon the supra-orbital regions, the intermediate spaces being free.

Brownish spots also appear, at times, upon the cheeks, the upper and lower lips, etc. Hebra mentions cases in which the pigment was spread all over the face, even to the chin, and gave one seeing it the impression that a veil of a brownish color was being worn.

Upon the body chloasmata appear by preference about the nipple and upon the Linea alba. Some women have a recurrence of these spots with each pregnancy, but are entirely free from them during the non-pregnant state. Others acquire them during a pregnancy, and never lose them afterwards. There are cases upon record of multiparæ, where these spots were associated, or rather coincident, with tumors of the ovary or the uterus. After the menopause, these spots disappear, and are never found in women whose generative functions have ceased.

There must, therefore, be some intimate relation between these chloasmata and the genital organs, but their real cause is not known.

ERYTHEMA PUERPERARUM.

Occasionally, after a woman has been delivered of a child, she shows a peculiar erythematous eruption, very similar in character to scarlet fever. Indeed, for a long time it was confused with this disease, and was called *Scarlatina puerperarum*; but Hebra finally demonstrated that it was not scarlet fever at all, but a puerperal septic affection. Descriptions of the disease have been given by Gueniot, McClintock, Hervieux, Besier, Reimond, and Legendre, and exhaustive discussions regarding it have been held in the academics of medicine of Paris and London.

A few days after delivery, fever appears, with diarrhœa, loss of appetite, and sleeplessness; the lochia take on a bad color, and have an offensive odor; the abdomen is tender upon pressure. With these symptoms, a redness appears in large spots, beginning upon the abdomen, spreading to the chest, and very rarely attacking face or hands. If the septic

symptoms increase, the spots become livid, and remain until death, which may result. If, however, the septic process can be subdued, the spots disappear with the subsidence of the fever, and recovery may take place.

It is not scarlet fever, because in this form of erythema the eruption begins upon the abdomen, while in scarlatina the eruption begins upon the neck or upper anterior thoracic wall. Further, Erythema puerperarum never shows any throat symptoms. It must, therefore, be an erythema due to septic infection.

IMPETIGO HERPETIFORMIS.

This remarkable disease, of which only ten cases have been reported, is always found in women, and either at the end of pregnancy or at the beginning of the puerperium. It appears upon the abdomen in the form of vesicles and pustules arranged in large groups, and sometimes forming circles or ellipses. The purulent secretions become dry, and form yellow crusts, the underlying surface being excoriated. Near these crusts new eruptions of pustules take place, and this may continue until the whole surface of the body is covered. There are no prodromal symptoms; but the eruption appears suddenly, and is accompanied by fever.

When *Impetigo herpetiformis* occurs during the course of pregnancy, it frequently produces premature delivery; but delivery has no effect upon the course of the disease. It usually ends fatally after two or three months; but I saw one case in which recovery took place. It was in the clinic of Professor Hebra, in 1878, and cure was effected by the use of the continuous bath.

Micrococci have been found in the contents of the pustules, and the conclusion is forced upon us that the disease is an infectious one.

Pemphigus foliaceus is another disease which is more frequently found in women than in men, and which seems to bear some relation to pregnancy. Hebra mentions the

case of a woman in whom the pemphigus eruption appeared with each of seven pregnancies, and lasted until the puerperium had passed. Duncan Buckley* published some cases of pemphigus occurring during pregnancy, under the title of *Herpes Gestationis*.

H. Hebra thinks there is some relation between pemphigus and hysteria, but no definite observations have, as yet, been made to show this relationship.

Nothing of a more definite nature than the foregoing can be stated in regard to this disease, the *Pemphigus foliaceus*.

CHAPTER IX.

PHYSIOLOGICAL INDIVIDUAL CONDITIONS.

COMPLEXION.

IN each individual there are modifications of the body compatible with health, and characterized by the predominance of one functional apparatus over the others. The skin shows the influence of this predominance in its color and its freshness, so that we may use the word complexion to mean the bodily constitution, the temperament, and the natural disposition; that is to say, to the eye of the skilled observer, the complexion, especially that of the face, shows to a great extent the internal economy. It is natural, therefore, to suppose that the predominance of one set of functions will impress itself upon the general organization, and thus predispose the skin to particular eruptions.

Rose-red skin, with reddish-colored hair, belongs to the sanguine temperament. Individuals of this temperament are strong and plethoric, have an active circulation, and vigorous muscular system, are lively in imagination, and

* American Journal of Obstetrics and Diseases of Women and Children, 1874.

have violent tempers. The skin is smooth, soft, and frequently marked with freckles.

Such persons are very liable to have erythematous eruptions, because of the abundant blood supply to the skin. *Erythema caloricum*, which is due to the rays of the sun, is apt to attack such people in the Spring. *Erythema exudativum* is also very apt to occur in those of sanguine temperament, and affects chiefly the hands and feet. It may appear in various forms. When eczema attacks such an individual it rarely becomes chronic, but usually runs an acute course, is characterized by an abundant production of vesicles and a marked discharge of serum, and, as a rule, yields readily to treatment. Relapses, however, are frequent.

As these individuals are usually well supplied with Pan-niculus adiposus, they are frequently, especially during the Summer, afflicted with *Erythema intertrigo*, which is produced by the rubbing of one fold of skin upon another, particularly in the armpits and between the legs.

Psoriasis, although it may occur in any complexion, is rather more common among the sanguine.

White and soft skin and a fair complexion belong to the lymphatic temperament. Individuals possessing this temperament usually have rounded forms, pretty features, and blonde hair; but the muscles are small and flabby, and there is an abundance of fat. Generally the skin is oily, from its abundant supply of sebaceous glands; the circulation is not active, and the mucous membranes are of a pale rose color. When eruptions occur in the skin of such an individual, they tend to become chronic.

Seborrhœa, in all its varieties, is very frequent. The abundant supply of sebaceous material also causes comedones, or black-heads, and these in turn produce obstinate eruptions of *Acne punctata*, especially upon the face and shoulders. Eczema occurs in such individuals rather frequently, and the discharge is more or less purulent. When the pus is abundant we have *Eczema impetiginosum*. When the pro-

ducts of the eczema become mixed with the fatty discharges of the skin, yellowish crusts are produced, and we have that variety of eczema known as *Melitagra flavescens*. Scrofulosis is very frequently found in individuals of this temperament, and consequently *Lichen scrofulosorum* and subcutaneous abscesses are common. *Lupus vulgaris* is also frequently found.

A brownish-yellow skin, with black hair and eyes, marks the bilious temperament. People of this temperament are usually robust; the Panniculus adiposus is not well developed; the features are sharp and intelligent, denoting a powerful will, and the temper is quick, sometimes cruel. Their digestions are usually bad, and costiveness very often occurs. They are not often subject to skin diseases from any peculiar condition of the skin itself, but the disordered digestion frequently produces eruptions. The physician's first duty in the treatment of such patients for diseases of the skin is to inquire as to the digestion and the condition of the bowels. *Urticaria*, *Lichen urticatus*, is of rather frequent occurrence, and *prurigo* is not uncommon. Because of the costiveness, and the consequent stasis in the blood-vessels of the abdomen, hemorrhoids, *pruritus ani*, eczema about the arms, varicose veins in the legs, with consequent infiltrations, and eczema are apt to be present.

In old age, people of this temperament are the most frequent subjects of epithelioma of the skin.

The nervous temperament is characterized by a pale face, thin skin, and an abundance of brown or chestnut-colored hair. These people are spare and poorly nourished, the skin is generally fair, and the eyes sparkling, denoting great vivacity. Such persons are capable of showing great energy, but are liable to attacks of nervous prostration.

They are subject to the neurotic eruptions, such as zoster, which is often accompanied with severe neuralgic pains. *Urticaria*, in the form of *Lichen urticatus*, is not uncommon.

Bazin says that these individuals have the herpetic

diathesis; but the so-called herpetismus is a myth, as there is no *Materia peccans* in the organism. The skin, because of its sensitiveness, is easily affected by morbid conditions and its reaction is more pronounced than in other temperaments.

We may conclude this chapter by asserting that the complexion, as we have defined it, has a predisposing influence upon the production of skin diseases.

CHAPTER X.

DISEASES OF THE SKIN CAUSED BY OTHER MORBID AFFECTIONS.

EFFECT always follows cause. The pathology of the skin is under the same law. We have already seen in the course of this book that many skin eruptions are caused by disorders of other organs; as, for instance, *acne*, *urticaria*, etc., are the results of disordered stomach; *roseola* often appears as a consequence of typhoid fever; *Erythema nodosum* after a rheumatic attack; *albuminuria* is often followed by purple spots; and *œdema* and *cyano-sis* as consequences of some disturbances in the circulatory organs. To give, however, a complete *résumé* of all the affections of the skin which are produced by systemic diseases, would necessitate a repetition of nearly all that has heretofore been said. I shall, therefore, limit myself in this section to some affections which I have not before mentioned, viz.: *Cicatrices* or Scars, *Ulcera* or Ulcers, and the results of stasis in the circulation.

CICATRICES OR SCARS.

Wherever the skin is cut, torn, or destroyed, it is replaced by connective tissue, which is then known as a sear or *ciatrix*. The surface of a sear is flat, white, glistening,

does not contain pigment, hair, or glands, and is harder than the normal skin. When the skin is destroyed down through the papillary layer or the corium, it is never reformed, but a proliferation of connective tissue takes place, and thus the wound is healed. The connective-tissue corpuscles, because of exaggeration of nutrition, become larger, return to their embryonal condition, and become nucleated; or, if nuclei exist, this proliferation produces new nuclei, which leave the mother cell, and are then capable of producing new cells. These new connective-tissue cells next elongate and become fibrillæ. The protoplasmic matrix may also change into fibrillæ, and then these fibrillæ from the cells and the matrix produce new bundles of fibres of connective tissue, which take the place of the destroyed skin. The connective-tissue cells arrange themselves in parallel rows, and thus produce new vessels for the nutrition of the new tissue. Were it not for the formation of these new blood-vessels, the new cells would undergo fatty degeneration, and the tissue would die. The new cells and the new blood-vessels which are formed produce what is known as granulation tissue, which finally fills up the space of the original wound, and then becomes covered with epidermis. The question of the origin of this epidermis is an interesting one. Some authorities attribute it to the corium, others to the white corpuscles of the blood; but the opinion which prevails to-day is, that these epidermic cells originate from other epidermic cells, which may come either from glands that have not been destroyed by the inflammatory process, or from the epidermis of the surrounding skin.

It is a remarkable fact that the scar does not retain the form of the wound, but its shape and its appearance depend upon the circumstances which accompany the process of cicatrization.

There are a great many diseases of the skin characterized by an exudative process, that are not followed by cicatrization, such as erythema, herpes, eczema, psoriasis, pemphigus,

Lichen serofulosorum, ruber, variola when very superficial, and syphilis when of maculo-papular or squamous form. Sometimes, however, these same affections are followed by scars when the anatomico-pathological process is more intense; as, for example, Herpes zoster is frequently followed by scars. The serum contained in the vesicles of zoster, instead of remaining a clear fluid, is changed into pus, or may be mixed with blood. This pus tends to destroy the papillary layer, and consequently the recovery may be by cicatrization. Sometimes in small-pox no scars remain; at other times the scars are deep and ugly, and the question arises whether or not these scars have resulted from the treatment. Frequently the exudation is only superficial, not going deeper than the Corpus mucosum; in which case no scars result. In the severer cases of small-pox, however, the exudation is deep down in the papillary layer, the consequent suppuration destroys the papillæ, and cicatrization follows. Hence the scars which follow small-pox are not necessarily the result of treatment.

Any excoriation of the skin, although superficial in character—such, for instance, as an eczema—may result in cicatrization when the parts are lacerated by scratching, providing the papillary layer be destroyed.

Burns and cauterizations usually heal by cicatrization of an irregular, ugly appearance. Syphilis tuberculosa and Ulcera serofulosa, because of the deep infiltration of the corium, cause permanent scars.

There is nothing characteristic in the scar, and we can not judge from its appearance what produced it. The scar of small-pox resembles perfectly the scar of acne, and the scar of a vaccine pustule can not be distinguished from that of the chancre. We can, however, draw some conclusion as to the cause of scars from their disposition, number, etc.; as, for instance, the aggregation of small, round scars upon the face reveals a pre-existent small-pox; scars irregularly shaped and elevated above the level of the skin lead us to

suspect cauterization by sulphuric acid; but the scars of syphilis or of lupus have nothing characteristic in them.

When a portion of the skin is destroyed, either by mechanical or chemical means, or as a result of a pathological infiltration, as in lupus or in syphilitic tubercles, an inflammatory infiltration, accompanied by suppuration, takes place, and granulation tissue results. We have already referred to the interesting *rôle* which the connective-tissue corpuscles play in the production of granulations—that by returning to their embryonal condition and proliferation new blood-vessels are formed, and the granulations are produced.

Scars may be normal, atrophic, or hypertrophic. The normal scar is flat, regular, and is on a level with the skin; the atrophic scars are depressed below the level of the skin; the hypertrophic are abundant, irregularly elevated above the level of the skin, and cord-like. The reason for this irregularity in the scar is to be found sometimes in the general system of the patient, and sometimes in the locality of the disease. In individuals suffering from the scrofulous diathesis, anæmia, or chlorosis, granulations have an abnormal development, and produce an irregular scar. The syphilitic dyscrasia, especially when the individual is well nourished, does not seem to have much influence upon the healing of wounds, and the resulting scars may be very regular. In locality many irritative causes, which disturb the process of restoration, exist. Foreign bodies, the clothing, caries, or necrosis of the bones, are all productive of inflammation, which may produce irregular granulations and irregular scars. In general, we can say that when the scars are hypertrophic and irregular the process of cicatrization was not closely watched nor properly treated, according to the principles of surgery.

The color of the scar depends upon its age. Thus a fresh scar has a reddish surface, and contains blood-vessels. An old scar is of a white, shiny appearance, and does not

contain pigment. Some scars are very sensitive and tender, while others are not at all sensitive.

From what has been said, it will be seen that inasmuch as scars can not be removed, a careful treatment of wounds is necessary in order to procure a scar regular in outline. It is not necessary to enter into the discussion of the surgical treatment of wounds as it existed in former times, further than to say that the prevailing surgical opinions controlled the treatment. Sometimes heavy bandages were recommended; at other times the wound was left exposed to the air, or the surface was irrigated with different solutions, or perhaps covered with different ointments.

At the present time the following principles of treatment prevail: When the granulations have a torpid appearance, an irritant, or something capable of increasing their vitality, must be used. For this purpose we may employ salves, and especially weak caustic solutions. Where the granulations are excessive, strong caustics are required to lessen the proliferation and keep the scars down to the proper level. Sometimes it is necessary to destroy the granulations entirely, in order that healthier ones may be produced.

Different parts of the granulating surface may be touched with a stronger or weaker solution of nitrate of silver, according to the amount of cauterization required. The nitrate of silver in substance may also be used for the same purpose, the degree of cauterization then depending upon the force with which the surface is touched. The action of the nitrate of silver does not spread beyond the surface with which it comes in contact, as is sometimes the case with other caustics. In cases where a still stronger cauterization is required, caustic potassa, acetate of copper, Vienna paste, etc., may be used. But then care must be taken not to produce too deep an escara.

The transplantation of epidermis or of small pieces of skin, as recommended by Reverdin and practiced in recent

years, is a very useful procedure for healing up extensive destruction of the skin and obtaining more regular scars. A piece of skin, from ten to twelve millimeters long and from two to three wide, is cut from the surface of the body, and is then divided in ten or twelve small pieces. These are applied, at short distances from each other, upon the granulating surface of the wound. This surface is then covered with strips of sticking-plaster, to keep these small pieces in contact with the surface, and then a Lister dressing is applied. In five days the bandage is to be removed, the surface cleansed, and a new dressing put on. In from eight to ten days after the transplantation has been made, whitish points may be noticed upon the surface. These points become cicatricial centres in two or three weeks, and then grow peripherically until the margins touch each other, and the surface is covered with a complete cicatrix. Sometimes transplantation does not succeed, but in such cases the granulations are probably not healthy. Transplantation is to-day an assured fact in clinical surgery, although how to explain its action is not clear.

A cicatrix may destroy a function of an organ or produce frightful deformity; as, for instance, an extensive burn of the hand may result in a union of the fingers and a complete abolishment of all movement; so also burns of eyelids and lips may be followed by a union of the opposing surfaces, and thus all their functions may be destroyed. It is therefore necessary to give the most careful surgical attention to all cicatrizing wounds, so as to preserve the normal functions and prevent deformity.

In case loss of function or deformity has resulted, an operation may be performed. Hypertrophic scars may be excised, with the expectation of producing a new and more regular scar; but success is not often attained.

Certain local remedies have also been proposed for the purpose of diminishing the hypertrophic appearance by a reabsorption of its elements. *Emplastrum hydrargyri* and

iodoglycerin stand at the head of these remedies, and often give satisfactory results; especially the latter, which is to be applied and then covered with gutta-percha paper, to prevent the evaporation of the iodine.

Sears are sometimes accompanied by neuralgic pains, and excision of the sear may become necessary; but usually hypodermic injections of morphia will control the pain. Time is very often the best medicine, and when the sear is old enough its tenderness disappears entirely.

KELOID.

This is a kind of new-growth, which may be considered as either a disease of the cicatrix or as a disposition upon the part of the individual to such new-growths. The appearance of the keloid is that of a hypertrophic sear, elastic, elevated above the level of the skin, and of various shapes and sizes. The color is white and shining, or slightly rose-red; the surface is smooth, covered with a thin layer of epidermis, and the skin shows sometimes a few scattered hairs, and is painful to the touch. Keloid is usually divided into two classes,—true keloid, which is of very rare occurrence, and of no importance to our subject; and the other the sear keloid, or false keloid, which has been described above. The new-growth consists of an abundant net-work of connective-tissue fibres, constituting the stroma. These fibres become by degrees harder, thicker—in a word, more sclerotic—and form a whitish mass, poor in blood-vessels, and strictly defined from the surrounding normal tissue, so that in its earlier stages it resembles the texture of a sarcoma in the shape of its cells, and in its later stages it has the appearance of a fibroma.

Keloid must be respected and left in its place; because, if the surgical knife be applied and the growth removed, another larger and more protuberant one appears, not only covering the old site, but affecting also the edges of the wound. The application of *Emplastrum hydrargyri*, of

iodine, etc., has not been followed by any good result, but seems only to irritate the tumor. It is therefore best to let the scars alone, and all advertisements for the removal of scars are humbugs.

ULCERA CUTANEA.

Cutaneous sores were, of course, noticed in the very earliest time; but they were not definitely classified, and every kind of tumor which produced a superficial destruction of tissue by degeneration of its elements was grouped with the ulcera under the name of *Έλκος*. Under *Ulcera cutanea* we include all those destructions of the corium produced either by an inflammatory process or by infiltration of the tissue, in which healthy granulations do not exist, and in which there is no tendency to recover. An ulcer consists of a loss of substance consequent upon another affection, and by which the papillary layer and the corium are destroyed; and recovery can only take place by the formation of new connective tissue; that is, by cicatrization. The destruction of the papillary layer of the corium by an inflammatory process may occur in two ways—one, in which there is a molecular destruction, and the necrotic tissues are wasted by an insensible exfoliation; the other, in which the tissues are affected *en masse* by necrosis, and separated as a gangrenous slough.

The ulcerative process is always the result of an inflammation or of a neoplastic infiltration. The factors in the production of ulcera may be either mechanical, chemical, or individual constitution. Among the former may be mentioned continuous pressure, burns, and caustics; among the latter, varicose veins, atheromatous induration of the arteries, chronic dermatitis, eczema, hypertrophy, and the various degenerations of the tissues. Neoplastic infiltrations are frequently the cause of ulcers, as in lupus, carcinoma, and syphilitic gummata. Sometimes the seat of an ulcer is the cause of the difficulty in recovery, as when it is exposed to

the irritant action of urine or fecal matter. When the edges of an ulcer are hard and have a callous appearance, cicatrization is not apt to occur. The general constitution of the patient, especially such diathesis as syphilis, scrofula, scorbutus, etc., also prevents cicatrization. Ulcers are characterized by a secretion which varies in quality and in quantity. Sometimes it is thick and of a greenish-yellow color; at other times it is thin fluid, and with an offensive odor. When ulcers are neglected, the secretion becomes dry and produces crusts of various shapes and appearances. Some ulcers are accompanied with pain, which is produced by an inflammatory process. If painful, it is called an *erethistic*, and if not painful, an *asthenic* ulcer.

There are two periods in the life of an ulcer—one when, in consequence of the inflammatory process or the neoplastic infiltration, the tissues have been destroyed; the other when the destructive process has ended and healing has begun. After the destructive process has ceased, the ulcer remains stationary for a time before the period of restoration begins. The inflammation and the swelling have diminished, pain has disappeared, and beneath the purulent secretion, small, red points appear, on the bottom and near the periphery of the ulcer. These are the new granulations, which continue to grow slowly over the whole surface, and change the ulcer into a granulating wound. When the granulations have reached the level of the skin, the process of restoration of the epidermis begins as a bluish white strip at the periphery of the wound, and spreads thence towards the centre, finally covering the granulation. This is the process known as cicatrization.

The above-mentioned type is that of the regular ulcer, but we are not always so fortunate as to see so typical a course; for sometimes the period of destruction is accompanied by erysipelas; or there may be abundant secretion and severe pain, thus giving to the ulcer the characters of phlegmon or of phagedenic sore. A large part of the tissue

may also be converted into a dry, dead mass, adherent to the normal structures, producing thus a gangrenous sore. Sometimes an ulcer has very little secretion; its bottom is covered with whitish-gray membrane, strongly adherent, and which, when destroyed, is liable to recurrence, producing the diphtheritic ulcer.

The shape of an ulcer varies greatly, sometimes resembling a kidney, and sometimes running an irregular, snake-like course upon the skin—the so-called serpiginous ulcer. Anomalies occur also in the period of the healing of an ulcer. The granulations often are small, dry, without secretion or sensation, as in the atonic ulcer; or, on the other hand, the granulations may be whitish, large, containing abundant serum, and rising above the level of the normal skin—an appearance which is known as *Caro luxurians*, or “proud-flesh.”

From what has been said it will be seen that ulcers are divided into two large classes,—the first comprehending all ulcers which are produced by an inflammatory process, and the second all those which result from neoplasms. The first class, according to Kaposi, may be divided from their clinical characters into two secondary groups, contagious and non-contagious.

The contagious ulcers are the result of a particular inflammation produced by a specific virus. To this class belong the different chancres—soft chancres, syphilitic initial chancre, syphilitic ulcer of the skin, etc.

The non-contagious ulcers are idiopathic and symptomatic. The idiopathic non-contagious ulcers are represented by those ulcers of the legs which occur in consequence of eczema, varicose veins, etc. The symptomatic ulcers are all those which appear on the skin as the result of a dyscrasia existing in the system. For instance, *Lepra græcorum* sometimes produces ulcers which are known as leprous ulcers. Scrofula very often produces an inflammatory action, which, taking its point of departure from the lymphatic glands,

spreads to the skin with destructive effect. Scorbutus also produces ulcers, which very frequently are the cause of profuse hemorrhages.

The class of ulcers which are produced by neoplasms is also very large, and includes those from lupus, from carcinoma, from syphilitic gummata, and the tuberculous eruption of lepra.

The physicians of former days were so ignorant of the cause of ulcers as to give them the appellation of "*Noli me tangere*." To-day, however, medical investigation has advanced so far that we understand the ultimate process of an ulcer and are able to apply the proper remedy.

The *Ulcus perforans* of the foot (*mal perforant du pied*) is a neuro-paralytic gangrene. The alteration of nutrition in the tissues in consequence of a disturbance of the nervous system has been so carefully examined that we can readily understand how paralysis of the trophic nerves of the tissues may result in the production of an ulcer.

It is not our purpose to speak of the treatment of ulcers, for this belongs more properly to the practice of medicine or surgery than to hygiene; but there are some superstitious popular ideas which we feel called upon to notice. It was formerly believed that ulcers were the effort of nature to rid the system of some offensive disease, and that if the purulent secretions from an ulcer were stopped, the lungs, the kidneys, or other organs, would become affected. From what has been said in this chapter we know that an ulcer is the result of a pathological alteration in the tissues; but we do not know of any ulcer which, when cured, produces disease of internal organs. The old-time medical practitioner tortured his patients with a fonticulus, which was nothing else than an artificial ulcer produced by the insertion of a foreign body into the skin, so as to draw away from the lungs any impure matter existing there. Superstition—nothing but superstition!

An ulcer may be healed up courageously without any

fear of producing a bad effect upon the general system. Syphilitic and scrofulous ulcers may be easily cured by a rational internal treatment, together with proper local applications. Ulcers upon the legs, resulting from varicose veins or eczematous eruptions, must be treated; and when the patient is relieved from this trouble, no systemic disturbances will result.

SKIN AFFECTIONS CAUSED BY IMPROPER CIRCULATION OF THE BLOOD.

These affections are intimately connected with ulcers, as the latter are often the result of pressure upon the venous system, preventing a free return of the blood. But in this chapter we wish to speak more particularly of those alterations of structure and function which result from stasis or passive hyperæmia. These affections have nothing to do with an active or arterial hyperæmia, but are caused chiefly by compression upon the vessels. They are grouped together by Auspitz in his new classification of skin diseases. Stasis, of itself, is capable of producing many skin affections without any symptoms of irritation or inflammation, while, upon the other hand, we may have inflammatory conditions of the veins (phlebitis), or of the lymphatic vessels (lymphangioitis), these causing stasis and consequent disturbances of the skin. Phlebitis and lymphangioitis, which may be caused by stasis, are frequently the cause of more serious troubles in the deeper tissues, such as erysipelas or phlegmon. Stasis, although not inflammatory itself, may give rise to irritation, consequent arterial hyperæmia and true inflammation, with resulting phlegmon gangrene, hypertrophy, etc. Phlebitis and lymphangioitis may also act as irritants, and be followed by the same results. Therefore, different degrees of congestion produce different effects upon the skin. In one degree there will be a simple passive hyperæmia, without alteration in the walls of the blood-vessels; in another there will be transudation of serum into the meshes of the

surrounding tissues, producing an œdema, which in many instances, especially if acute in character, is easily reabsorbed; in a third degree, secondary changes in the connective-tissue corpuseles occur, producing induration and sclerosis (hypertrophy). In many of these cases in which there is interference with the circulation of the blood, cutaneous hemorrhages or purpura may occur; in other cases, hæmoglobinorrhœa—a condition in which the coloring matter of the blood passes through the walls of the blood-vessels—may take place. In still other cases the lymph is not readily discharged into the venous system, and œdema, which sometimes leads to hypertrophy, results.

CYANOSIS.

When the venous blood can not freely flow past some impediment to the circulation, and the arterial blood flows free in its course, a passive stasis occurs, known as *Cyanosis*. Auspitz tried this experimentally, binding a limb in the same way as is done in blood-letting. The skin in this case becomes bluish, grayish, and dark blue, especially in the last extremities, fingers or toes, in the face, the nose, the auricle, and the lips. The temperature is diminished on these parts about one degree. Cyanosis can remain in this way for some time, and show only some œdema of the affected parts; but when the obstacle to the circulation is not removed, some red color appears mixed with the blue, which does not disappear under the pressure of the finger. The red color is not due simply to the stasis of the blood in the blood-vessels, but, as Stricker and Connheim have proved, to the colored corpuseles of the blood, which by diapedesis, pass through the walls of the blood-vessels, and become changed into hæmoglobin. Red spots are the result. As soon as the obstacle to the circulation is removed, the cyanosis disappears, assuming the color of hæmoglobinorrhœa, which leaves a pigmentation.

When, however, the obstacle to the circulation remains,

brown-red spots of the size of a split-pea, neatly limited, appear, which are true hemorrhagies, and are due to the rupture of the blood-vessels. All these symptoms begin to be accompanied with a eutaneous œdema, when the lymph is no more reabsorbed.

Usually such disturbances in the circulation are the consequence of diseases of the internal organs, and in these cases the prognosis is very doubtful. In other cases they are the result of some compression of the peripheric vessels, as in cases of fracture with irregular callus of tumors, etc. The veins, when they have lost their elasticity, remain varicose, and no more return to their normal condition.

The treatment is entirely subordinate to the cause which produced the disturbance of the circulation. When the cause is in the peripheric vessels, frictions with aromatic substances are of some benefit. The application of the rubber bandage, producing a uniform compression, is the most beneficial means to reduce the varicosities of the veins.

ŒDEMA CUTIS—HYDROPS.

When the skin is œdematous, it appears much paler, and in the places where it was red has a livid color. It can not be raised in folds, is glossy, and has a wax-like appearance. Sometimes vesicles or bullæ, full of serum, occur on the surface. On compressing the skin with the finger, a depression remains for some time. The patient has a feeling of heaviness, and the sensitiveness of the skin is diminished.

The skin when œdematous, according to the elasticity of the different regions, has a different appearance. The eyelids, the lips, and the serotum are enormously swollen, the back of the hands, the legs, and the feet assume a round shape, on account of the swelling.

Œdema is usually the result of disease of the general system, and only seldom is an idiopathic affection. Difficulty of the return of the venous blood and of the lymph in the general circulation is the principal cause of œdema. Some-

times the cause is in the peripheric blood-vessels, as in cases of embolism or thrombosis, or by compression made by tumors or scars in their course. At other times the cause is in the central organs, as in the diseases of the heart and of the large vessels.

In persons affected with hydræmia we sometimes meet with cases of œdema. The water in the blood is in excess as compared with the albumen. This œdema is found in cases of malarial cachexy, in scurvy, and in Bright's disease of the kidneys.

The fluid which constitutes œdema is nothing else than the serum of the blood, is clear, of alkaline reaction, and contains always albumen and about ninety-five per cent of water. This at first remains in the lymphatic loculi of the skin, and especially in the subcutaneous tissue, and afterwards is found in the meshes of the corium.

The treatment of the œdema, as to the prognosis, depends on the causes which produced the affection. Internally we can give remedies capable of producing serous discharges from the bowels, cathartics, or, to act upon the kidneys, diuretics. Experiments have recently been made by Bubnoff with the infusion of *Adonis vernalis*, which is one of the strongest diuretics. He found that in twenty-four hours the urine, under the use of this remedy, could be raised from 300 and 400 cubic grammes to 2,000 and 3,000, and œdema in a short time disappeared.

The formula for the preparation of this remedy is:

R. *Adonis vernalis*, 3j.
Aq. fervent., 3vj.
Infund., et col. colatur. Adde
Olei menth. pip. gutt. ij.
 Sig.—One table-spoonful every two hours.

Serum can be also drawn from the skin by the use of sudorifera. *Jaborandi* and its alkaloid, *pylocarpin*, have proved successful in several cases.

Hot baths, continued for about one hour and afterwards

covering the patient with woollen cloths, produce abundant perspiration, and in some cases have proved very beneficial. When œdema is greatly developed, water can be drawn by puncturing the skin with superficial scarifications; but it is necessary to be careful, as the skin in this condition very frequently is affected with erysipelas, which, on account of the diminished vitality, may result in gangrene.

When œdema results from varicose veins, the use of gradual compression with rubber bandages may produce the reabsorption of the effused lymph and reduce the swelling.

MYXŒDEMA.

W. Gull, in 1873, called the attention of dermatologists to this peculiar affection, which, under an altered mental condition, under alteration of the digestion, and under symptoms of highly developed anæmia, acts upon the subcutaneous tissue so as to produce a hard œdematous condition. Gull called the affection *Cretinoid œdema*.* In London many cases have been observed, but in Germany no case has so far come under observation. A brief description of this disease we take from Hans Hebra, who studied it in London. There is no doubt that it is a general disease of the organism. The patients at first look very pale all over the body, and in some regions of the body the blood-vessels appear swollen and distended from stasis. By and by the whole surface of the skin becomes hard and swollen, and when pressed with the finger an impression remains for a long time. The epidermis is smooth and glossy.

The patients have the appearance of cretins; the eyelids are closed, and the corners of the mouth drawn downwards. The movements are difficult, and the tongue can not articulate words when they want to speak. The sensitiveness of the skin is diminished, and also some degree of analgesia is remarked.

* On a cretinoid state supervening in adult life in woman. Trans. of the Clin. Soc. of London, 1873.

The intellectual functions are weak, the conversation is childish, and no power of attention is shown.

The disease once begun, in a few months reaches the last stage, and the œdema is spread all over the body. In this case the face entirely loses its expression, the eyelids become swollen and closed, the nose and the lips hard and infiltrated, the patient is unable to speak, and his memory is entirely gone. All the cases observed to the present time have proved fatal in the course of a few years.

The ætiology of this disease is not well known. It seems that mental troubles have a great influence in its production, as repeated pregnancies and loss of blood. Women seem more disposed to this disease than men; as, according to Barthelemy, in twenty-five cases, seventeen occurred in women.

The anatomo-pathological lesions in the skin are the same as those of the chronic œdema. There is a swelling of the fibres of the connective tissue, the corpuscles are enlarged, the walls of the blood-vessels become infiltrated and hypertrophic. The terminations of the nerves appear altered considerably, and the nervous fibres are compressed by a kind of transparent substance which exists between the fascicles.

Charcot claims to have obtained some improvement by a milk diet, with the use of sulphurous baths. The hygiene of the patient is the most effective remedy.

ELEPHANTIASIS ARABUM.

The most striking illustration of the effects of venous stasis is without doubt *Elephantiasis Arabum*, a disease which in many hot climates is endemic, and occurs sporadically in temperate regions. It affects only a limited portion of the body, but increases this portion enormously in volume. There is a serous transudation into the meshes of the subcutaneous tissue, which causes a lymphatic œdema of hard consistence resembling sclerema. The connective-tissue fibres are greatly increased both in size and number; the

corium becomes infiltrated, and the fascicles of the fibres thicker; the epidermis is sometimes very thin, sleek, and stretched, and at other times is rough, hard, hypertrophic, and covered with small warts. This affection has been described by Fuchs under the name of *Pachydermie*, its process resulting from the serous transudation and the hypertrophy of all tissues. At intervals, in consequence of the interference of the circulation, there is coagulation of the blood or thrombosis in the vessels; endoarteritis and endophlebitis are produced, with an enlargement of the collateral vessels, and consequent sclerosis of the connective tissue.

The usual location of elephantiasis is the lower portion of the body, where the stasis of the blood more easily occurs. The genitals in both sexes, and the legs, are in preference attacked, and *pachydermie* of the arms is considered a rarity. In women the clitoris has been found of such a volume as to resemble a fist, and the labia majora, or the small pudendal lips, have such an extension as to reach, in the form of a tumor, the middle of the thigh, and even the knee.

The scrotum in men is also affected by elephantiasis, and several cases have been described in surgical clinics.

The leg affected with *pachydermie* assumes such proportions as to resemble the foot of an elephant (*elephantopus*). The foot is not spared in its dorsal region by the disease, and the fingers appear like small prominences.

There is no doubt that the direct cause of this disease is the interference of the circulation in the affected part, which produces stasis of the blood and of lymph. The process is increased by the repeated attacks of erysipelas and lymphangioitis which frequently recur, and at each time the volume of the affected part is increased.

This explanation is sufficient to account for the cases of elephantiasis which occur sporadically in the temperate climates, but is not entirely satisfactory for the cases of endemical elephantiasis which are observed in hot climates. The heat, the telluric condition, and the water have been assigned

as causes of this disease. In some cases of elephantiasis, when endemic, chyluria has been found, and this was con-



FILARIA SANGUINIS HOMINIS.

sidered the ætiologic factor. In 1866 Wucherer in Bahia discovered in the urine of patients affected with elephantiasis and chyluria small parasites, which were afterward found in the tropical regions of South America, in Egypt, and in India. Lewis demonstrated the existence of this parasite in the blood of patients affected with elephantiasis of the serotum, and drew a figure as shown in the accompanying diagram.

Manson advanced the opinion that these parasites get into the lymphatic vessels, and obliterate them, thus causing a stasis of the lymphatic fluid, and chyluria with elephantiasis are the consequence. Bankrofft in Australia found the filariæ in a lymphatic abscess and in an elephantiac serotum. He suggested the hypothesis that these parasites are probably transmitted by mosquito-bites. Manson confirmed this opinion by finding embryos of these parasites in the stomach of the mosquitoes. Mosquitoes die in still water; the filaria embryos reach their full development, and afterwards they get into the human stomach when it is used for drinking water. The few sporadic cases which we met with in our country are mostly the result of some obstacle in the circulation of the blood. The most effective treatment in the beginning of the disease is a methodic compression with rubber bandages, which are very easily applied on the legs,

so as to diminish the œdema. For the elephantiasis of the genitalia, surgical means are to be used, and the affected skin has to be removed by a heroic treatment, in order to prevent relapses.

When elephantiasis in the leg has reached such proportions that bandages can not do any good, the ligation of the Arteria femoralis and of the Iliaca externa must be resorted to. This has been tried several times with beneficial results.

SCLERODERMA.

This is a peculiar affection where large portions of the skin, or its whole surface, assume such a hardness as to resemble wood. The patient remarks on his body rose-red spots, without any pain, scarcely elevated above the level of the skin, and accompanied with a peculiar hardness. After some time the spot is depressed in the center, whitish and shiny, at times scaly, retaining the redness on the edges. In some cases the disease is limited to few spots (*Scleroderma circumscriptum*); in other cases it affects the whole surface of the skin (*Scleroderma diffusum*).

The initial red spot at times assumes a livid hue, with a tendency to turn violet, and takes a long time to develop in size; but at other times it speedily assumes large proportions. The violet-red color slowly disappears, leaving the skin whitish, hard, and shiny, in an atrophic condition, which continues for many years. In some cases the red-violet color, when disappearing, leaves a pigmentation on the affected spot, with a consequent brownish dark discoloration. The end of this disease is, that the skin, after many years, returns to its normal condition, or remains unchanged during the whole life.

No alteration of the general system is to be remarked; the only complaint of the patient is the difficulty of the movements when the affected part is near the joints. The skin appears distended, can not be raised in folds, has no furrows or wrinkles, offers to the touch the same resistance

as cartilage, and when pressed does not show any depression. When the face is attacked, the features are considerably altered, and the eyelids, the lips, etc., can be moved with great difficulty. The most annoying places for its attack, however, are the extremities, where the movements cause deep fissures in the underlying tissues. When scleroderma is diffused, it causes marasmus, and the patient continues to waste away to death.

The cause of this disease is not known. The opinion that it is the result of a trophoneurosis was sustained by Hallopeau, Lionville, Harrey, and Schwimmer, who found alterations in the nervous system. Wesphal maintained that scleroderma was always accompanied by induration of the circumvolutions of the brain. Other observers, as Lagrange and Besnier, deny this statement, having never found the mentioned lesions of the nervous system.

It seems that affections of the mind have great influence in the production of this disease, as fear, terror, etc.; and also that an individual is liable to it when in a marasmatic condition.

The histological observations of Chiari show that in the sections of the sclerodermic skin abundant pigment exists in the Malpighian and papillary layers. The fascicles of the fibres are much closer together, and the loculi between them are very small. The subcutaneous tissue is hard, and loses the fat; the sebaceous and the sweat glands, and also the hair follicles, are atrophied and scarcely perceptible. Therefore the whole process consists in the induration of the connective tissue composing the corium and the subcutaneous tissue, with a hypertrophy of the pigment in the layers of the epidermis.

Rasmussen and Kaposi maintained that these alterations are due to a diminution of calibre of the lymph and blood-vessels.

The variety of opinions on the origin of this disease has occasioned a great difference in the therapeutic applications.

Iodine, iron, and arsenic have been used internally, and irritant ointments of different kinds, baths, and massage externally, but without much benefit. The best results have been recently obtained by the use of electricity, either in a constant current on the affected spots, or by galvanizing the sympathetic nerve. More observations are however required before we can arrive at any positive conclusion.

Neerotic processes are also caused by interruptions in the circulation, and the result is gangrene. Spontaneous gangrene, or *Gangrena senilis*, occurs when one of the most important ramifications of the arteries is obstructed by thrombosis, or is compressed in such a way that the blood can not pass to nourish the tissues. In this case we find a part of the skin, usually in the extremities, converted into a dry, dark-brown eschara of an offensive smell, which spreads by the periphery.

It is difficult to foresee at what point the destructive process will stop. When the gangrenous eschara has been limited, then, at the edges, an eliminative inflammation begins, which detaches the diseased skin, and so recovery takes place through the sear. The atheromatic condition of the arteries is the most efficient cause of the development of gangrene in old age.

Decubitus is also a form of gangrene of the skin, whose cause is an obstacle in the circulation. Usually it is produced in the parts where the body lies for a long time and the bones act as a compression upon the skin. It is dangerous on account of the reabsorption of septic substances; but when duly cleaned, after the removal of the necrotic skin, healthy granulations begin, and the surface heals up.

Decubitus can be prevented by always watching the back of the patient, and seeing that he does not always lie in the same position, and by rubbing him once or twice a day with an alcoholic solution.

Ainhum is a form of spontaneous gangrene which affects only persons of the African race, in the toes. The descrip-

tion of this disease is taken from Da Silva Lima. It begins with swelling in the toes. A kind of depression in the inferior portion of the last toe, rarely in the fourth toe, takes place, and extends around it in the form of a hard ring. The toe then swells up, becomes violet-colored, and falls off in consequence of the gangrene. The cause of the disease is not known. In the regions where the negroes are affected with this disease, no white man has ever suffered with it. The process is the result of the stasis caused by the hardness of the skin, which constricts the blood-vessels. Da Silva Lima has secured the recovery of patients by making several incisions around the toe, so as to prevent the stasis.

CHAPTER XI.

ERUPTIONS OF THE SKIN PRODUCED BY REMEDIES OR POISONOUS SUBSTANCES.

ALIMENTS, remedies, and poisons are closely associated, and so intimately connected together that an aliment becomes a remedy, and a remedy becomes a poison, according to the different uses made of them, and the quantity. Milk, the ordinary aliment of our life, is used as a remedy in many diseases. Alcohol in a moderate dose is both aliment and remedy in many fevers, and becomes a poison when taken in a large quantity. Morphia and strychnia are violent poisons when taken in large amounts, but in small doses they are among the most valuable remedies we possess.

The remedy, to be such, must produce an organic impression, which is transformed in curative action. We see, therefore, in medicines a local and a constitutional action. Remedies applied on a cadaver have no action except physical or chemical, because there is no reaction, which is the

result of the functions of life. In a living body, in the physical and chemical action of remedies we see the physiological reaction, which sometimes is on a special locality, at other times is in the general system.

On the skin we find a proof of this fact, as we see eruptions produced by the local, irritant action of the remedy, and eruptions on the whole body the result of the reaction from the dynamic action of the remedy.

I. LOCAL REMEDIES A CAUSE OF SKIN ERUPTIONS.

Under this head are included all of those eruptions known as artificial eruptions, and produced by the application of substances to the external surface of the body. The Hippocratic system of medicine used many remedies for the purpose of irritating the skin, as *riuellentia*, *rubefacientia*, and *epispastica*.

The eruptions resulting from the application of these remedies were grouped under the name of *Erythanthema toxicum* by Hans Hebra, but we can still consider them as an *Eczema artificiale*.

It is easy to demonstrate these eruptions by rubbing croton-oil upon the skin. If but a small quantity of croton-oil be used, the skin becomes red, slightly swollen, and produces a burning sensation. There is a slight erythema, and in two or three days it ends in a moderate desquamation. If, however, a larger quantity of croton-oil be used, the inflammatory action is more marked, the skin becomes red, swollen, and covered with vesicles. The serum of these vesicles is discharged upon the surface, becomes dry, and produces scales, with all the symptoms of an eczema. If we still keep on using croton-oil, a pustular eruption follows, the vesicles are changed into pustules, which become dry, and form thick, yellowish crusts.

Thus it will be seen that the erythema, the eczema, and the impetigo are simply different stages or degrees of the same process, produced by the irritating oil.

Similar effects are produced by Unguentum tartari stibiati (Autenrieth), Mezercon, Tinctura cantharidis, Oleum terebinthinæ, Tinctura arnicæ, sulphur, Helleborus albus and niger, and mercurial ointments.

Tinctura arnicæ is a household remedy, and is more frequently applied to the detriment than to the benefit of the skin.

Sulphur is also applied to all sorts of skin troubles without any distinction. It is popularly considered to be the panacea for all eruptions. Slight eruptions, eczemata, sudamina, etc., are immediately covered with some preparation of sulphur under this notion, and the result is an eczema, which may require a long course of treatment. The skin is a continuous membrane, and these apparently slight injuries may spread by continuity over the whole surface. Hence, if a finger be injured, and sulphur or other improper substance be applied, the difficulty may not end until the arms and the face are covered by an eczema.

The local application of mercury, especially in the form of mercurial ointment, sometimes produces an eruption which may be papular, vesicular, or pustular in character, and is known to dermatologists as Eczema mercuriale or hydrargyria. Individual susceptibility plays an important rôle in the production of this form of eruption; for while some persons get the Eczema mercuriale after a single application of the ointment, others may apply it indefinitely and have no trouble upon the skin. I have ordered inunctions of one drachm daily of the ointment in many cases of syphilis, and have not had any cases of Eczema mercuriale, even after eighteen to twenty-four inunctions had been given.

A. Van Harlingen, of Philadelphia,* says that Alley first called attention to mercurial eruptions. Alley divides hydrargyria into three classes, viz.: *Hydrargyria mitis*, *Hydrargyria febrilis*, and *Hydrargyria maligna*.

Hydrargyria mitis is characterized by marked heat and

* Medicinal Eruptions, Phila., 1880.

itching of the skin, followed by redness about the scrotum and inguinal region, the abdomen, and the upper part of the thighs. The skin is found to be covered with small vesicles. The symptoms soon disappear of themselves, if the use of the mercury be discontinued.

Hydrargyria febrilis succeeds the preceding form if the ointment continue to be used, and is much severer in character. The vesicles take on a coppery tint, and increase in size; their contents change from serum to pus, and crusts are formed as in true eczema. The mucous membranes also become involved. After four or five days, desquamation begins; the epidermis is detached in large flakes, and, as sometimes happens in scarlatina, three or even four exfoliations may take place. The skin does not regain its normal color for a long time after the disappearance of the eruption.

In *Hydrargyria maligna* the symptoms are intense; the skin becomes burning hot and of a purplish-red color; it is covered with confluent vesicles, among which may be seen true bullæ, filled with an acrid and fetid humor; the throat is sore, the face tumefied, the glands engorged, and the pain is severe. In favorable cases, desquamation is established by the eighth or tenth day; in fatal cases, gangrene of the mouth, large accumulations of pus, and diffuse phlegmons are observed.

No statement was made by the authors mentioned as to whether the mercury was used externally or internally; but Van Harlingen believes that these symptoms were described as occurring after the internal use of it, and quotes, further, cases from Fournier, Kalheis, and Zeissl, in which the internal use of calomel was followed by an eruption resembling scarlatina.

I recollect seeing in the clinic of Professor Hebra a case of *Hydrargyria mitis* produced by using the mercurial ointment for *Pediculi pubis*; the scrotum was purplish-red, and showed in some places large vesicles; the upper part of the thighs and the abdomen as far as the thorax were covered

with a small papular eruption resembling morbilli. The eruption was accompanied by a slight fever, some redness of the gums, and slight salivation. I had once a stout, robust man under treatment for syphilis; the first inunction of mercurial ointment produced such a severe Eczema mercuriale as to prevent its further use.

In a large number of syphilitic patients treated with Liquor Vanswieten (solution of corrosive sublimate), Pil. Dupuytren, Pil. Ricord, etc., I never saw a case of mercurial eruption because of the internal administration, and my experience is that of Professor F. Hebra, who, while he does not deny the possibility, said that he never had had a case of hydrargyria in his practice from the internal administration of the drug. There are, however, a great many authors who believe in the occurrence of this kind of hydrargyria.

Such is the case also with subcutaneous injections of corrosive sublimate, which I have used extensively in the treatment of syphilis, in the clinic of Hospital S. Gallicano in Rome, in my private practice, and in the clinic of the Miami Medical College of Cincinnati. I have yet to see my first case of hydrargyria from these injections.

Eczema mercuriale is due probably to some free mercury in the ointment, or to water used in washing the affected part after the remedy has been applied. Patients should always be warned not to use water after inunctions, as this is apt to be followed by eczema.

POISON SUMACH.

There are certain plants which possess irritant properties, and which, when brought into contact with the skin, are apt to produce an eruption. The poison sumach, or the ivy, botanically known as *Rhus toxicodendron*, is a very good example of this class of plants, and is especially mentioned here because of its common occurrence in this country. It belongs to the order *Pentandria trigynia* (Linn.), to the family of *Terebinthaceæ anacardiaceæ*, and is a small shrub

of from one to three feet in height, erect or recumbent, with pubescent leaves, oval acuminate, entire or sinuate dentate; the flowers are racemose, axillary, in subsessile panicles. It is native in America, but is now cultivated in the gardens of Europe. The suburbs of Cincinnati are infested with it. The stems contain a whitish juice, which holds the poisonous or irritating substance. This juice turns black upon being exposed to the air.



POISON SUMACH.

The ivy is not always poisonous. It has these irritating properties chiefly at the time of flowering, and is more dangerous after sunset than during the day. The hydrogen which this plant gives off at night is capable of carrying the poisonous principles to considerable distances, and thus of producing its peculiar eruption in the skin of delicate children and women at some point removed from the place of growth of the plant. This variability in the poisonous effects of this plant has given rise to the idea that the ivy has no effect upon certain individuals, who are supposed to be able to handle it with impunity, while others are, because of some supposed idiosyncrasy, liable to be affected by the slightest contact.

The ivy produces a form of *Erythema venenatum* which resembles the *Erythema caloricum*.

A few hours after contact with this plant, a burning sensation is experienced at the place of contact, followed by redness of the skin. From the place of contact it may

spread to all adjacent parts. This is well illustrated by a case which occurred in my practice. A gentleman in whose garden a quantity of this poisonous ivy was growing pulled it out by the roots with his own hands, to prevent his children from being affected by it. Within a few hours he experienced a burning sensation, accompanied by redness and swelling upon his hands and arms, and the following morning the eruption had spread to his face and neck. The eruption may not go further than an erythema, but sometimes it is so excessive and pronounced as to produce exudation, with the formation of vesicles and blisters. The skin becomes swollen, and if the face be attacked it may be very much disfigured. The simple erythematous form of eruption, when appropriately treated, lasts usually three days. When exudation has taken place, the disease lasts about a week; but when persons with a delicate and susceptible skin are affected by the eruption, an eczema results, and this may last for months. From this latter fact has arisen the popular idea that the eruption from poison ivy lasts a long time.

The treatment is a local one, and consists of bathing with lead solutions, or dusting with powders, according to the degree of inflammation.

II. ERUPTIONS PRODUCED BY THE INGESTION OF REMEDIAL SUBSTANCES.

It has long been known that certain remedies and drugs are capable of producing eruptions upon the skin, but within the past few years these observations have increased, and cases of eruptions now are known to be due to medicines, where such a thing was not formerly dreamed of. Behrend, Morrow, and Duffy have collected many of these cases from medical literature; but Van Harlingen* has written the most elaborate monograph upon this subject, and we refer those wishing fuller particulars to his work.

A knowledge of this subject is necessary in order to

* Medical Eruptions, Phila., 1880.

prevent confounding such eruptions with those due to other and more permanent causes. The most of these cases consist in hyperæmic spots, maculæ, which belong to the general order *Roseolæ*. Exudation, however, may take place, nodules and pomphi arise, and the eruption becomes an erythema. The eruption appears suddenly within a few hours after the remedy is taken, and quickly subsides when the remedy is stopped. It rarely has fever as an accompaniment, but usually has symptoms peculiar to the substance ingested.

Evanescent forms of erythema are apt to follow the ingestion of those substances which produce a paralysis of the vasomotor nerves, such as belladonna (*atropia*), hyoscyamus, stramonium; so, also, do amyl nitrite and chloroform produce an erythema, which is commensurate with the dose and the susceptibility of the patient.

I have seen two cases of erythema from belladonna in children. They were cases of whooping-cough, in which I prescribed extract of belladonna in solution of one grain to two fluid ounces of water, one tea-spoonful to the dose, to be given every two hours. After two or three tea-spoonfuls had been taken, large, red patches resembling scarlatina appeared upon the chest and arms of both children, and spread to the abdomen of one of them.

Commonly the eruption first shows itself upon the upper portion of the body, the face, and neck. It is of a bright color, and in large patches, which disappear upon pressure, to reappear immediately when the pressure is removed, and accompanied by a burning sensation. It disappears in a few hours after the remedy is discontinued, and is not followed by desquamation. Van Harlingen quotes Jolly, who described a case of eruption following the use of belladonna in a poisonous dose, in which case the eruption covered the whole body, and had a papulo-erythematous form.

According to Harley and Meuriot, belladonna quickly stimulates the ganglionic system, causing an acceleration of the circulation, followed by diminution and stasis in the

capillaries, veins, and arteries. The increased stimulation causes increased flow of blood, and hence a sense of heat and some perspiration upon the skin, but is succeeded by paralysis of the vasomotor nerves, stasis in the capillaries, and other vessels, and hence erythema.

COPAIBA.

The balsam of copaiba, which is so often used in the treatment of blennorrhagic troubles, is frequently followed by roseola and erythema. It has such an irritating action upon the stomach and intestines that its use must be abandoned at times. The eruption is peculiar. It begins with sensations of burning or prickling in the skin, followed by rose-colored spots, irregularly round in outline, not much elevated above the surface, and usually grouped in large patches. It may appear upon a limited portion of the skin, or may spread over the whole body. Sometimes it appears as pomphi (wheals), and thus acquires the name of *Urticaria balsamica*, which does not differ in appearance from the urticaria produced by the ingestion of indigestible articles of food.

The itching is aggravated by the patient's lying in bed, so that the bed-clothing has to be removed. The wheals are often so close together that the skin appears as though generally swollen. The eruption shows a preference for the wrists, the hips, the knees, and the face.

Hardy relates a case of pemphigoid eruption following the use of copaiba. A young man, who was taking six capsules of copaiba daily, acquired a rose-colored eruption, accompanied with itching sensations. The medicine was discontinued, and in a few days the eruption disappeared. The medicine was then resumed, and in twelve days thereafter a bullous eruption appeared, with abundant secretions, followed by desquamation.

At first the eruption is accompanied by fever; the tongue is coated; there is loss of appetite, and at times diarrhœa; or,

occasionally, constipation. When the copaiba is stopped the eruption becomes pale, and in a short time disappears, and this disappearance is followed at some points by desquamation.

It is not a great many years since this balsamic eruption was thought to be due to syphilis, and thus arose the erroneous idea that glæet was one of the initial symptoms of syphilis.

PILOCARPINE.

Since the introduction of pilocarpine into the practice of medicine, cases of hydrosadenitis have been ascribed to its influence; but the remedy can only play a secondary part, for the eruption must be due to the sweat. This eruption, which is also known as sudamina, or prickly heat, is of very frequent occurrence during the Summer in persons who sweat very profusely, and it is found also in individuals who sweat freely from any cause. It is therefore not peculiar to pilocarpine; but when this remedy is administered, especially by subcutaneous injection, abundant sweating is produced, and consequently the sudamina will appear. Undoubtedly pilocarpine has a pronounced action upon the skin, especially upon the sweat and sebaceous glands. Professor Pick, of Prague, has, indeed, administered it internally in cases of Lupus erythematosus with satisfactory results, and proved its great influence upon the sebaceous glands.

QUININE.

An erythematous and papular eruption has recently been described as following the exhibition of quinine; a fact which was mentioned by Professor Hebra in his lectures, but he did not go into details. Dr. Morrow, of New York, published a monograph upon the quinine eruptions, and this was quoted by Van Harlingen. The usual form of this eruption is, as I have said, erythematous and closely resembles the rash of scarlatina or measles. It first shows itself upon the face and neck, but soon spreads over the whole

surface of the body. Occasionally it becomes papular, and resembles Erythema multiforme; at other times it resembles urticaria. Dr. F. N. Otis relates a case in which two or three grains of quinine provoked an eruption resembling that of poison ivy. Morrow has collected five cases of Purpura hemorrhagica following the use of this drug. In my own practice I have had one case of erythematous eruption from quinine given to a child eight months of age. This child had intermittent fever of the quotidian type, and I prescribed sulphate of quinine, twenty grains in a two-ounce solution, of which one tea-spoonful was to be given every two hours. Upon the following day the face and neck of the child was covered with small papules, rose-red in color, and resembling the eruption of measles. This spread all over the body, but disappeared within twenty-four hours after the medicine was discontinued.

ARSENIC.

From earliest antiquity arsenic has been considered the best remedy for skin diseases. It was introduced into medicine for this purpose, and its use probably arose from the fact that horses fed upon it acquired an abundant coat of hair.

The action of arsenic seems to be directed particularly to the epidermis, increasing its nutrition. It is successfully administered in cases of eczema, psoriasis, and especially in Lichen ruber. But this great remedy is itself liable to produce skin eruptions. Hilton Fagge reports a case of scarlatiniform and vesicular eruption from the ingestion of arsenic; but as quinine was given at the same time, some uncertainty exists as to the real cause of the eruption. (Van Harlingen, l. c.) Himbert Goubeyre* speaks of a vesicular form usually found about the face and eyelids, and refers to many cases of papular eruptions with some resemblance to measles, due to arsenic. Urticarial eruptions have also been observed as due to the same cause.

* Histoire des Eruptions Arsénicales. Moniteur des Hôpitaux, 1867.

The most interesting form of skin diseases arising from the ingestion of arsenic are, however, the herpetic eruptions. Hutchinson called the attention of dermatologists to, and Dyce Duckworth reported a case of, sacro-coccygeal herpes in a girl of nine years, who had been taking Fowler's solution for ten days. Hebra speaks of two cases of zoster which came under his observation. These were cases of Lichen ruber, where the persons affected were taking arsenic. One of them became affected with zoster early in the treatment; the other, later.

Other cases have been reported by Finlayson; but as yet, as James C. White says, there has not been a sufficient number of observations to warrant a positive conclusion, especially since zoster has been noticed while other remedies than arsenic were being used.

I was consulted by a gentleman from New York for chronic eczema of the hands and face. I prescribed Asiatic pills in connection with the local treatment, and in two weeks the patient was seized with fever and a dorso-pectoral zoster upon the right side. The course of the zoster was that of the usual form of the disease.

IODINE.

Iodine produces erythematous, papular, vesicular, bullous, pustular, and hemorrhagic eruptions, the most common form being the pustular. Bumstead and Taylor describe the erythematous form as following the use of potassium iodide, occurring in isolated patches, chiefly upon the forearms, but sometimes affecting the whole surface. The papulo-vesicular form as described by Berenquier occurs suddenly as a bright-red flush upon the chest and extremities, followed by vesicles and desquamation, and accompanied by itching. O'Reilly, Bumstead, Taylor, Dulring, and Hyde have described cases of bullous eruptions consequent upon the use of iodine.

The pustular form begins as a pustule with indurated

base, which resembles very closely the pustules of *Acne vulgaris*, from which fact it is known as *Acne iodica*. It affects the sebaceous glands, and chiefly those of the face. I have seen numerous cases of slight eruption in women in the Syphilicomium of Rome, from doses of from ten to twenty grains a day of the iodide of potassium. In some of these cases pustules appeared upon the forehead and cheeks, together with sore-throat or *Angina iodica*. In all these cases the symptoms disappeared when the remedy was discontinued.

A patient once in the clinic of the Miami Medical College of Cincinnati had his face and neck completely covered with pustules which resembled, to a certain extent, the pustules of syphilis. The patient was syphilitic and taking Potassium iodide, and was advised to continue the medicine in doses of half a drachm daily. The eruption grew worse, and then he was referred to me. In his case there was an *Acne iodica* to deal with, and I ordered him to stop the medicine. In eight days the eruption disappeared.

BROMINE.

Bromide of potassium is also followed by a pustular eruption, which is severer in character than that resulting from the use of iodine. Bromide of sodium is not so liable to produce an eruption.

Van Harlingen quotes Dr. S. Weir Mitchell, of Philadelphia, who, in a communication to the College of Physicians of that city, alluded to the acneform eruption, and described several cases in which the continuous administration of the drug in doses of a drachm or more daily for two or three months gave rise to a furunculoid eruption. In the course of this affection groups of lesions were observed to break down in deep, coin-sized ulcers, with everted edges, and with a tendency to accumulate pus and epithelium, thus giving the lesions a rupia-like appearance.

Stow and Bill have also described similar cases. I saw

one case in the clinic of Professor F. Hebra, in the person of a fifteen-year-old boy, who had been taking bromide of potassium for a long time because of some nervous disease. The eruption was chiefly upon the arms and legs, although it was also on the trunk and face. It consisted of large and thick crusts, under which were ulcerations with elevated edges. In the more recent parts the elementary or primary form of the eruption was found to be a large nodule or papule, depressed, and with elevated edges, either completely circular or semicircular. The epidermis and the exudation break down, produce ulcerations, and then crusts. Such is the ordinary form of eruption; but various other forms have been described as following the use of bromine. Louis A. Duhring, of Philadelphia, described a case of maculo-papular eruption which appeared in a patient, who, after the moderate use of bromide of potassium, awoke one morning with an erythematous condition of the skin about the face and the neck, with some flat papules and pustules. The face was congested, hot, and easily flushed. The sebaceous glands were enlarged, and some were covered with sebaceous crusts. Wigglesworth described a case of bullous eruption, due to the influence of bromide of potassium. A lady, who for a long time was under treatment with bromide of potassium for epilepsy, had on her body bullæ of the size of a split-pea, varying to that of a pea-corn. The bullæ burst, leaving in some places the derma uncovered, in others an ulcerated surface. But the ordinary eruption of the bromide of potassium is the acneform, as I have already stated, and which has been beautifully described by Theod. Viecl and I. Neumann.

The explanation of this eruption is very unsatisfactory, although Adamkiewicz and Guttmann believe that both the iodine and bromide eruptions are due to the attempted elimination of these substances by the skin, the lodgment of them in the sebaceous follicles, and a resulting inflammation.

Guttmann, in order to prove his theory, took the con-

tents of several large pustules, mixed them with distilled water, and filtered them. To the mixture he added chlorine water, drop by drop, obtaining a yellowish color, which showed the presence of bromine. But Clarke and Amory maintain that very little bromine passes out of the skin, and, in consequence, this theory can not be considered satisfactory. They consider as the more probable cause of the eruption the derangement of the nutrition of the skin, resulting from the action of the bromide upon the peripheral nerves, a trophoneurosis.

The treatment is local, and comprises careful attention to the papules, to prevent further breaking down and a further spread of the ulcerations.

TAR.

Tar, although a very useful tonic for the skin in such diseases as eczema, psoriasis, etc., and although well borne by a great many people, is still liable to produce eruption in those whose skin is susceptible, even after a single application. There are painful sensations, the skin becomes red and swollen, vesicles and blisters may arise, and, indeed, all the symptoms of a dermatitis or erysipelas may supervene, and run their usual course, even if the use of the tar be immediately stopped. At other times the tar may be used for a long time without producing any symptoms, until suddenly the hair follicles become red, swollen, and nodular, the nodules being about the size of a split-pea; in short, a true acne is produced. The characteristic of this affection is a black point at the apex of each pustule, resembling a comedone, which is caused by an accumulation of tar in the follicle. Stopping the use of the tar is sufficient to cure this acne.

This acne may also occur in persons who work in tar or its products, such as benzine, paraffine, etc., whether these individuals handle the tar directly or are only surrounded by its vapors. Professor Hebra saw a great many cases of

acne in individuals who worked in coal-oil refineries, and a singular circumstance was, that the eruption was not confined to those parts of the body which came into contact with the coal-oil, but appeared in other parts not at all exposed to such contact. I have frequently used coal-oil in several parasitic diseases of the scalp, and in some cases acne of the forehead and face has resulted.

NITRATE OF SILVER.

The internal use of the nitrate of silver is liable to produce a discoloration of the skin which is known as *Argyria*. I had the opportunity of seeing a very remarkable case of argyria in the clinic of F. Hebra, in a lady who suffered for a long time with an epithelioma of the beginning of the œsophagus. The patient was under the care of a physician who used large applications of nitrate of silver on the ulcerated new-growth. The cauterizations were often repeated, and after some months of that treatment symptoms of argyria began.

The favorite region for argyria is the forehead, which takes on a dark, brilliant color, resembling the color of lead-pencil on the skin. The silver is changed into its metallic condition and as an imperceptible powder is deposited in the Rete Malpighii with the pigment of the skin, producing this interesting discoloration. It is not necessary to say that when argyria has shown itself on the forehead in its characteristic discoloration, we have no cure and no means of removing or diminishing the resulting deformity.

CHAPTER XII.

INFLUENCE OF DIET IN THE PRODUCTION OF
SKIN DISEASES.

THE skin, which we have shown to be so intimately connected in its functions with the entire system, must be greatly influenced for good or evil by the different articles of food and drink which are used. With its power of sensibility, it is the thermometer of life, showing the condition of the vital heat, and serving as a warning against external or internal impressions.

Food is the source of material for repairing waste in the tissues, and for supplying animal heat. To insure these results, food must be in sufficient quantity, and must consist of all the needed varieties of the animal, mineral, and vegetable kingdoms.

The substances used for nutrition have two different actions. Some are assimilated while they are repairing the loss of the tissues, and are known as plastic aliments; others help the nutrition, sparing the elements of the tissues, and are called respiratory aliments.

The animal aliments, containing a large proportion of azote, are also called azotized aliments; while the vegetable aliments, having more hydrogen and carbon, are known under the name of carbo-hydrates. Aliments can be distinguished as *fibrinous* aliments—meat; *carbonized* aliments—sugar, fat, fecula, starch; *farinaceous* food—farina, potatoes, beans; *mucilaginous* or *aqueous* aliments—fresh vegetables, fruits; *oleaginous* aliments—butter, oils; *albuminous* food—eggs, brain, oysters; and *gelatinous* food, prepared from the fibrous and cellular tissue of the aponeuroses, etc. There is another class of aliments called *digestive* aliments, because, with their aroma increasing the sapidity of the

food, they augment the secretion of the digestive humors, especially of the saliva and the gastric juice. To this class belong all the spices, which, on account of the ethereal oils they contain, promote this result, and the kitchen salt which we use in quantities far larger than is really necessary for repairing the loss of the economy. These substances, acting as stimulants to digestion, indirectly favor nutrition.

A diet, to be complete, must contain more or less of all the staminal principles. Nature itself illustrates this point in the composition of milk. Milk, which is the only aliment of the mammals in their first stage of life, has for its constituent elements albumen, sugar, butter, salts, and water. It is designed and prepared by nature expressly as food, and it is the only material in the range of organized matter that is so prepared; and we can consider it as the type of alimentary substance. Every principle is represented in milk in such proportion that it may be the exclusive aliment of the infant, and it can be used in certain conditions also by the adult.

All organic matter, whether animal or vegetable, is composed essentially of the same elementary principles, four in number—oxygen, hydrogen, nitrogen, and carbon. The saccharine staminal principle is composed of oxygen, hydrogen, and from forty to fifty per cent of carbon; the albuminous, of oxygen, hydrogen, nitrogen, and from fifty to seventy-five per cent of carbon; and the oleaginous, of oxygen and hydrogen, with eighty per cent of carbon. These three nutritive principles are found in an extensive variety of substances, which, though they appear dissimilar in character and properties, differ only in the quantity which they contain.

Vegetable aliments, in comparison with animal, are commonly not so abundant in albuminoid substances, and contain a very limited quantity of fat. The aliment of herbivorous animals is more abundant and more difficult of digestion than that of carnivorous. The alimentary principle of vegetables is deposited in cells covered with

cellulosa, which is very slowly dissolved. This is the reason why the herbivora have the alimentary canal longer than animals living on a mixed or carneous food.

The alimentary substances taken into the stomach are submitted to the chemical process called digestion, which has for its object the separation of the primary principles from their state of union in the food, and their combination so as to constitute an animal nutritive principle, capable of being received into the blood, and of undergoing successive transformation. The first act of digestion begins in the mouth (*prima digestio fit in ore*). The food put in the mouth is ground by the action of the teeth, in mastication. The teeth tear the food in small pieces, according to their different action. The tongue pushes the mass under the teeth; and when the food is masticated it is also saturated with saliva, which is a very powerful agent in digestion. The saliva is a fluid supplied from three pairs of glands, and is mixed with the mucus of the mouth. It has neither color nor odor, is thick, and has no taste. Small, round corpuscles are contained in the saliva, which are called salivary corpuscles. The chemical reaction of the saliva is alkaline, which increases at the moment of eating. The most interesting substances composing the saliva are the mucina and the ptyalina, of the same nature as ferment. This last has the chemical power of changing the starch, which is insoluble in dextrine and glucose—isomeric substances, but soluble. The mouth is kept constantly humid from the saliva, and the dry foods mixed with the saliva are easily swallowed. The mass so prepared by the action of the tongue and of the veil of the palate, is pushed into the pharynx; the constrictor muscles of the pharynx push it into the œsophagus, which, by the movements of the circular muscular fibres, brings it into the stomach.

As soon as the food has descended into the stomach, that organ increases in volume, especially in the pyloric region, and changes a little its position, as the great arch of

the stomach is directed forwards, and the small backwards. The stomach furnishes two secretions different in nature and origin—mucus and gastric juice. The mucus proceeds from the mucous glands of the mucous membrane of the stomach, as well as from the epithelial cells detached from the surface. When the stomach is empty, its color is rose-red, and the surface is lubricated with a slight layer of mucus of alkaline reaction. The gastric juice is the production of the glands which secrete that humor. It is thin, without color, of acid saline taste, of acid reaction, much more remarkable in the carnivora than in the herbivora. According to the analysis of Bidder and Schmidt, the gastric juice of man contains, in 1,000 parts, 3 of pepsin, 0.2 chlorohydric acid, 2 of mineral substances, and a little phosphoric acid.

The stomach, when empty, does not produce gastric juice, but the secretion begins when the food descends into the organ, while the mucous membrane becomes red and suffused by the blood. It is remarkable that a mechanical stimulus also can produce secretion of the gastric juice; as, for instance, introducing small stones into the stomach. The quantity and the quality of the secretion depend, too, on the nature of the food introduced into the stomach. Substances difficult of digestion produce a very abundant secretion, and very acid. The mind has also some influence on this secretion. So Bidder and Schmidt remarked that a dog with a gastric fistula, when deprived of food for one day, at the sight only of food, secreted gastric juice, which could be collected from the fistula. Moral shocks disturb the digestion, and we know that the secretion of the gastric juice is under the influence of the nervous system.

The digestive action of the gastric juice operates on albuminous, gelatinous, and glutinous substances, and the result of these substances, digested, is called *Peptonus*.

So far as albuminous substances are concerned, if in a solid condition they are dissolved; if introduced in a fluid form, some, as casein, are at first coagulated and afterwards

dissolved: the albumen not coagulated remains always in the same condition. The peptonus proceeding from albumen presents many changes, although the elementary composition is not altered. Peptonus has an acid reaction, and is not coagulated by heat. Many mineral acids and mineral salts which precipitate the albumen, have no effect on peptonus, and it is easily dissolved in water.

The digestive power of the gastric juice is due to the pepsin and to the acid. It was demonstrated by Eberle that the aqueous extract of the mucous membrane of the stomach contains an organic substance capable of producing digestion. The resistance of this substance is very strong, so that a dried stomach, after many months, can produce the action, as we see the stomach of the ruminants used for coagulating casein. Pepsin must be simultaneously combined with the acid in order to produce digestion. Each of these materials by itself has no action, and in the gastric juice, where the acid is neutralized, albuminous substances are not digested, but decay. The gastric juice containing the right proportions of acid and pepsin has the faculty of arresting putrefaction, if that process has begun, in the ingested food. The quantity of the acid is very variable, and a different quantity is required for the digestion of different foods. A certain quantity of the gastric juice can dissolve only a certain quantity of albuminoid substances, but with a further addition more is dissolved. Many substances united to the gastric juice are capable of diminishing its digestive action, such as caustic alkali, alum, tannic acid, and alcohol. During digestion the stomach slowly becomes empty, and some of the albuminoid substances, being dissolved, begin to be absorbed from the mucous membrane of the stomach, especially in the pyloric portion. Another part of the alimentary poultice descends into the duodenum and the small intestines, where other digestive juices will finish the work of digestion. These are the bile, and the pancreatic and intestinal juices. Three or four hours after the ingestion

of food, the stomach has commonly completed its work and becomes empty. When the stomach is overcharged with food, it can not digest such abundant quantities of albumen, and so the digestive fluid is not as strong as it was at the first, and digestion proceeds more slowly. In the stomach we have the digestion of albumen, the solution of soluble substances in the water, the continuation of the action of the saliva on the amylaceous food; the cells containing fat are broken and the fat is set free, but it remains unchanged by the action of the gastric juice.

The bile is a brownish-yellow fluid in the carnivora, and green in the herbivora, of a peculiar odor, extremely bitter, contains mucus, fat, cholesterine, inorganic salts, coloring matter, and two acids (glycocholic and taurocholic), which are combined with soda. The bile has no effect on albuminoid substances; and what is remarkable is, that if the bile once gets into the stomach, digestion is disturbed. If bile is added to a solution of peptonus, there is a precipitation. When bile is added to the gastric juice, the artificial digestion of the albumen is interrupted. In animals with a biliary fistula the digestion of albuminous substances proceeds without disturbance. Upon amylaceous substances the bile has no effect, because in animals with biliary fistula their fecal matter never shows the presence of amylum. The most interesting office of the bile in digestion is in regard to the fatty substances. Brodie remarks that the lymphatic vessels, which in regular digestion are full of fatty substance, are entirely empty and discolored when the biliary ducts are ligated. Bidder and Schmidt, in their chemical analysis, have demonstrated that the fat is very scanty in the chyle of animals affected with biliary fistula, and in the fecal matter they found that over half of the fatty substances ingested passed unaltered. Furthermore, the animals where a biliary fistula was present had very little fat in their Panniculus adiposus. The bile has also a peculiar influence on the peristaltic movements of the intestines, and it is well known

that a large amount of bile in the intestines produces diarrhoea ; and when there is a scant supply we have the opposite condition, costiveness.

The other digestive fluid is furnished from a peculiar gland, the pancreas, and is known as the pancreatic secretion. It is a sticky fluid, destitute of any color, with an alkaline reaction. It contains mineral principles and an albuminoid substance, which is coagulated by heat, and is precipitated by the action of alcohol. When a fistula is artificially made in animals by introducing a tube into the duct of Wirsung, as was done by Ludwig, Weiman, and others, it is remarked that the secretion is largely increased after the ingestion of food. It was noticed, in cases of the destruction of the pancreas, that the digestion did not suffer much, the stomach performing a strong action in the dissolution of albuminoid materials. But it is to-day considered, without any doubt, that the pancreatic fluid is necessary to the digestion of the albumen. When pieces of coagulated albumen are mixed in a solution of pancreatic juice, they are dissolved and changed into peptonus. Amylum is very rapidly changed into dextrine and glucose by the action of the pancreatic juice, finishing in this way the digestion begun with the saliva. When the pancreatic juice is mixed with fatty substances, the fat is extremely attenuated, in the form of an emulsion, and some is also separated into glycerine and fatty acids. When the fatty acids are free in the second portion of the reduced mass, and the action is no more neutralized by the acidity of the gastric juice, these are combined with the alkali, forming a kind of soap.

The mucous membrane of the intestines has a peculiar secretion, which is called intestinal juice, furnished from the follicles of the membrane. The action of this fluid is to continue the emulsion of the fat, and the transformation of amyllum into sugar, and the complete dissolution of the albuminoid substances.

We thus see that each portion of the digestive apparatus

has its own action on the food, which is displayed according to the progress of the alimentary bolus. The food remains in the mouth a very short time, especially when introduced moist and divided. It remains in the stomach longer where it is mixed with the gastric juice. There it undergoes an acid reaction, which sometimes is intense on account of lactic acid resulting from the alteration of alimentary substances, and at other times is weak on account of large quantities of saliva. The alimentary mass so prepared in the stomach is called chyme, and is pushed into the intestine. It is composed of a mixture of the alimentary principles, partly dissolved and partly not, with gastric juice, giving it an acid reaction. But slowly finding alkaline secretions, the acidity diminishes, and finally takes on an alkaline reaction. In the cæcum the mass begins to have the fecal appearance. The fecal matter is the remaining portion of the food, not profitable for the organism. This consists of insoluble substances, pieces of tendon, aponeurosis, inorganic salts, particularly the phosphate of magnesia, pieces of food which were not digested, and the unused bile whose coloring property gives the color to the fecal matters.

Having briefly considered the process of digestion, we must now point out the resistance which various foods have to the action of the digestive fluids, and which constitutes the digestibility of foods.

Foods of easy digestion are those which are more easily and completely dissolved; while foods of difficult digestion take a long time to dissolve, and many times are not dissolved entirely on account of insoluble matters entering into them. Food which is digested with difficulty, when taken in large proportion, produces digestive troubles in people who have commonly good digestion. Various circumstances exert an influence on the digestibility of food. Thus, albumen is better digested when not hard; potatoes are much better digested when mashed; a quantity of grease ingested with the food, prevents the gastric juice from penetrating it.

Vegetable cellulosa makes the action of the digestive fluid on the contents of the stomach very difficult.

Again, the quantity of the ingested food has a great influence on digestion. Large quantities of food are much more difficult of digestion than small. We have noticed that the secretion of the gastric juice is not continuous; and the last part of it is not so strong as the first. In this way a part of the food passes into the intestines undigested. The addition of certain substances to the food increases digestion. Mustard, aromatic spices, alcohol in minute quantity, favor the secretion of the gastric juice. Habit has also a good deal to do with digestion. One accustomed to eat indigestible foods, on eating foods of easy digestion may find trouble because he is not used to that quality of aliment.

Having seen that there are foods both of easy and of difficult digestion, it appears to us that, in cases of skin diseases, it is important for a physician to advise his patients in the use of one or another quality of food, so as to prevent disturbances of the stomach, which are frequently the cause of many affections of the skin. The diet suitable to the individual must be decided upon, and enforced in such terms as to leave no doubt in the patient's mind as to the importance of this rule. It is not easy to give a complete disquisition on diet in dyspepsia and weak digestion, because each case must be treated according to its own character. We give here a list of foods classified according to their digestibility, which we take from Arthur Van Harlingen.*

DIGESTIBLE FOODS.

MEATS.—Sweet-bread (plainly cooked), chicken and turkey (white meat), venison, partridge, pheasant, pigeon (squab), wild duck, rabbit, lamb (roast, stewed, or in broiled chops), beef (roast or in rare tenderloin steak), eggs (soft-boiled), tripe, oysters (raw, roast, broiled, or stewed, always

* Hand-book of the Diagnosis and Treatment of the Skin Diseases. Philadelphia, 1884.

rejecting the eyes), fresh fish (especially trout, perch, and flounders), meat broths and clear soups (carefully made, not rich).

VEGETABLES.—Rice, macaroni, spinach, tomatoes (stewed), peas (fresh and young), beans and string-beans (young and fresh), carrots (young), asparagus, oyster-plant, beets, okra.

BREAD.—Dry and milk toast, biscuit, toasted rusk, steamed crackers, wheat-bread, rolls, Graham bread.

QUESTIONABLE FOODS.

MEATS.—Reed-birds, duck, black meat of chicken or turkey, omelette, scrambled eggs.

VEGETABLES.—Potatoes (white), parsnips, stewed celery, raw celery, hominy, egg-plant, water cress, onions; bananas, grapes—but generally the Summer fruits, when fresh and in season, agree with almost every one.

BREAD.—Fresh wheat-bread, biscuits (when hot and fresh); oatmeal-mush, Indian mush, cracked wheat.

PUDDINGS (boiled and baked).—Custards of bread, farina, corn-starch, tapioca, etc.; stewed fruits, curds, and cream; plain cakes, as rusk, buns, etc.; ice-cream.

INDIGESTIBLE FOODS,

which generally disagree with persons of weak digestion, or suffering with various forms of dyspepsia.

MEATS.—Ham, pork in any shape, sausage, corned-beef, dried-beef, veal, goose, kidneys, liver; salt fish or smoked fish, as cod, mackerel, salmon, or herring; shell-fish, as lobsters, crabs, clams, and the eyes of oysters; hard-boiled eggs, cheese.

VEGETABLES.—Cabbage, sauerkraut, cauliflower, cucumbers, pickles, corn, raw celery, white potatoes, sweet potatoes; dried fruits, as raisins, figs, etc.; nuts, water ices, preserves.

BREAD.—Hot bread, and especially hot griddle and

other breakfast cakes; fritters, dumplings, puddings of boiled flour, pastry of all sorts, and rich cakes.

In general, salted fried food and too much fat are to be avoided, but fresh butter can be permitted.

Patients must be cautioned not to eat too fast, as Americans generally do, but to take their time, chew carefully, and not deluge the stomach with ice-water during the meal, especially at the beginning.

It must be remembered that the first digestion is done in the mouth (*prima digestio fit in ore*), and the more the food is masticated, divided, and saturated with saliva, the more easily is it prepared by the other organs of digestion.

The mucous membrane of the digestive apparatus has, in a high degree, the power of absorption, which we can demonstrate at any time by the rapid diffusion of certain poisons applied on the tongue, or of some medicines applied in the form of rectal injections. The immediate principles of the aliments and of the drink are in preference absorbed in the places where they remain a longer time in the stomach and in the intestine. The nutritive matter finds two ways to reach the blood, and they are the capillary blood-vessels and the chyliфера. The intestinal villousities increase the absorbent surface, and each villosity has a net of capillary blood-vessels and a chylifer in its center. It seems that the salts, sugar, alcohol, and many poisons, are absorbed rather by the capillary blood-vessels, while the albuminoids and greasy substances are absorbed from the chylifera. Albuminoid substances have no great endosmotic faculty; but when they are changed in peptonus, they are very rapidly absorbed. Sugar for its absorption must be changed into glucose, and then it is very easily absorbed. Fat is commonly absorbed as it is. Five hours after digestion has commenced, the chylifera have been found strongly injected with minute drops of fat, and so the villousities of the intestines have contained drops of grease. It seems that the bile has an indispensable office for the absorption of fat.

When the nutritive substance is taken into the blood it undergoes another process, in consequence of which it renews the tissues, while some is burned, producing carbonic acid. This is the product of the oxidation of the carbon, which is one of the constituent principles of the organism. The chemical process is identical in its result with what takes place in a burning candle, only the oxidation takes place by degrees. The carbon of the fatty matter of the candle combines with the oxygen of the atmosphere, and carbonic acid results. The carbonic acid of the body does not pass out entirely, but some remains as fat in the tissues and in the bones. A large quantity of fat is separated by the liver; some is disposed of in the formation of the hair and the unctuous substance of the skin, and a part, after the oxidizing process, is eliminated by the skin as carbonic acid. The nitrogen of the food forms compounds in the blood and in the tissues, which are of a stimulant nature, proper to assist in the development of heat. But when these substances are produced in excess they act as an irritant, and produce evil effects in the system.

The kidneys and the skin are the organs which separate these irritating matters from the body, and their retention in the skin is sometimes the cause of eruption and disease of this membrane.

The food must be fresh and sound. When decomposition has taken place, it acts as poison. Articles of food which must be examined before eating are fish, potted meats, sausages, game, and prepared spiced substances.

ERUPTIONS OF THE SKIN FROM FOOD AND FROM DISORDERS OF THE DIGESTION.

URTICARIA.

Urticaria is an acute or chronic disease of the skin, disposed to recurrence, and characterized by the rapid development of wheals of a whitish or reddish color. These

wheals disappear and reappear rapidly, and are accompanied by stinging, pricking, and burning sensations.

The name *Urticaria* is derived from that of the stinging-nettles, *Urtica urens*, because this plant produces an eruption like urticaria.

While a delicate skin may show this form of eruption from various kinds of external irritation—as from the bite of bed-bugs, etc.—I wish in this connection to speak of those varieties of urticaria which are produced by reflex digestive irritation, or by the direct poisonous action of material derived from the food.

Urticaria has been divided into a number of subdivisions, which are based upon the various characteristics of the disease, especially in reference to the size and color of the wheals and the course of the eruption.

A. DIVISION FROM CHARACTERISTICS OF THE WHEELS.

1. *Urticaria porcellanea*. The wheals are whitish in color. In this form the exudation into the meshes of the connective tissue is so abundant as to compress the capillaries and thus produce localized ischæmia.

2. *Erythema urticatum*. The wheals are very flat and intensely red.

3. *Urticaria papulosa* or *Lichen urticatus*. The nodules are small and closely aggregated.

4. *Urticaria bullosa*. The exudation becomes so great as to produce bullæ. This form resembles pemphigus very much, and care must be taken in making a differential diagnosis.

B. DIVISIONS FROM THE COURSE OF THE ERUPTION.

1. *Urticaria acuta*. Its outset is sudden and duration short.

2. *Urticaria recidiva*, with a disposition to relapse.

3. *Urticaria perstans*. The eruption is chronic.

The wheals or nodules vary greatly. In some cases there

are but few; in others the whole body is covered by them. They disappear readily, and leave no trace except in the chronic form, when a bluish discoloration may remain, or when, from the excessive itching, the patient has scratched himself, and thus produced abrasions, which last some time.

Urticaria is sometimes accompanied with fever, and in those cases in which there is no elevation of temperature the patient is pale and has a feeling of uneasiness, with a disposition to vomit. These symptoms are due to disorders of the digestion. As has been said, these disorders may arise from reflex action upon the vasomotor nerves because of irritation in the digestive tract; or, because of imperfect digestion or some peculiarity in the food, digestion does not take place, and decomposition of food occurs. The result is, that some peculiar principle or poison is brought into the circulation, and produces an irritation of the nerves presiding over the tonus of the blood-vessels. The results of either are: hyperæmia of the blood-vessels of the skin, paresis of these vessels, stasis, and exudation into the meshes of the connective tissue. The cases of urticaria which we find more frequently in our practice are accompanied with a condition of catarrh of the stomach and of the bowels. The patient has no appetite, he looks pale, after his meals experiences heaviness in the stomach, burning sensation, and flatulence. The tongue is coated, and has many furrows; the edges are red, and the papillæ of the tongue very perceptible and prominent. Many times there is diarrhœa, but in most cases costiveness. With these conditions the urticaria appears, which troubles the patient especially at night. In such cases it is very clear that the affection is intimately connected with the conditions of the alimentary canal, and the attention must be at first called to this organ. The food, on account of the hypersecretion of mucus in the stomach, is not attacked by the gastric juice, and not being duly digested, begins to decay, and principles of putrefaction are developed. The result of this incipient putrefaction in the stomach,

which is also revealed by the flatulence, is carried into the circulation, and becomes the cause of urticaria. From the few sketches which we gave in the beginning of this section on the digestion, it will not be difficult to understand how, when the food is not attacked entirely and regularly by the digestive humors, it must decay, and, of course, develop principles of decomposition which act as a poisonous substance entering into the circulation. Therefore, in cases of urticaria it is necessary to inquire into the condition of the digestion, examine the tongue and the condition of the bowels, and when the gastric or the intestinal catarrh is improved, the urticaria rapidly disappears. Modes of life, habits, exercise, change of air, and a well-directed diet will surely exert a great influence on that affection.

Irritation of the bowels may arise in urticaria, and really in cases of urticaria in children intestinal worms are the cause of this complaint. At other times an unusual excitement, a sudden emotion, is the cause of bringing out this eruption. But when we recollect what was said in the physiologic description of digestion, we will know that a sudden emotion stops the secretion of the gastric juice, and is the cause of dyspepsia. Very often, after bad news or something shocking to the sensibilities of an individual, the digestion is perverted and is the starting-point of gastric catarrh, which we consider the most common cause of urticaria.

Certain kinds of fish, oysters, shrimps, crabs, lobsters, pork (especially sausages), mushrooms, raspberries, and strawberries, are all liable to produce urticaria. Idiosyncrasy also plays a considerable rôle.

ECZEMA.

There can be no doubt that, although eczema is a local disease brought about by local irritation of the skin, every dermatologist will confess that often he can not find the true cause of it, and that often, where the true cause is found,

the effect is altogether out of proportion thereto. Every one is compelled to acknowledge, therefore, that there must be in some cases a predisposing or general cause, as well as a determining or local one. The skin, of course, is a part of the body, just like the other organs, and depends upon the whole system for its nutrition. Now, when this nutrition is not sufficient, as the other parts of the body show symptoms of non-nutrition, so, in the same way, the skin appears pale, of a peculiar color between chlorosis and icterus, and it is easily taken up in folds—an evidence of bad nutrition of the skin. Now, when this skin is so poorly nourished, every slight irritation will be able to produce eczema. In some cases we can see eczema by continuity between the mucous membrane of the intestine with the skin. *Eczema ani* shows us very often the intimate connection between the mucous membrane of the rectum and the adjoining skin. In children the erythema of the nates is a characteristic symptom of an enterocolitis, and when the enterocolitis is improving, the erythematous eruption disappears. Every one who suffers with *Eczema ani* is troubled with costiveness, many times with diarrhœa, so that there is always an irregularity of the bowels.

We will briefly consider the function of the diet in producing eczema, and we will be convinced that dietetic errors are frequently among the causes of the persistence of this disease. In infants, the mother sometimes surcharges the stomach of the little one, as every time that the child cries she gives him the breast. The child often is restless on account of the itching sensation, and giving him too much nutrition aggravates the digestive disorder. The time of feeding should be regulated, and milk given not oftener than once every three hours. At other times the fault is found in the quality of the milk, on account of dietetic errors of the mother. Duncan Bulkley* attributes eczema

* Bulkley, on Diet and Hygiene in Diseases of the Skin. New York. 1878.

in children to the habit of the mother in daily drinking ale, beer, wine, and excessive quantities of tea. Without doubt, the altered quality of a mother's milk, on account of dyspepsia, will have some influence on the eczema of her nursing child. Lactation prolonged may be also an obstacle to the cure of eczema, as the milk after some months is diminished in its nutritious quality. When the child is weaned great care is necessary to be taken with his diet. The child can not be allowed to eat every thing used in the nourishment of adults, but good fresh milk must be given him, with light soups. The administration of too much nitrogenous nourishment is an error in case of eczema in children, but it is also an error to overload their stomachs with starch compounds. Their diet must be mixed, and the basis must be fresh milk; and once or twice a day some beef-tea or beef-broth in the form of soup can be given.

Eczema in children has been lately called *Infantile eczema*, limiting its term to the fifth year of their age. Children usually furnish the largest contingent for eczema, and very frequently they are allowed to suffer through the vulgar error of parents, who fear to drive away the eruption lest it go to some other organ. When an infant has eczema during the period of nursing, it is vulgarly called "milk crust," and the parents feel confident that it will disappear when the child cuts its teeth. When eczema becomes worse with the accession of a tooth, they call it "tooth rash," which will cease when certain teeth are through. In this way many poor children keep their eczema for years without any effort to improve their condition, on account of the prejudice of their parents.

In the management of infantile eczema, it is necessary to pay the greatest attention to the diet of the child and the condition of the stomach of the mother. We find two classes of cases among the infantile eczema, which we must carefully distinguish—one which requires an alkaline and depurative treatment, and another which must be treated

with tonics and nutrients. Every one has remarked eczema of a dry appearance, with red surface, very itchy, discharging a considerable amount of serum, in children very well nourished and with healthy appearance. In these cases, light purgatives and alkalies, through their action on the gastro-enteric canal, will lessen the congestion of the skin, and help the local treatment. On the other hand, an eczema with a tendency to sero-purulent discharges, which form yellow, thick crusts on a pale-looking child, will be benefited by the internal use of iron and cod-liver oil.

When the general condition of the child is improving, light local applications are beneficial. The use of cod-liver oil externally, protecting the skin and removing the crusts, is of great service in bringing about a recovery. The use of zinc ointment has given good results in our practice. It is prepared after the following formula:

R. Zinc. oxid.
 Tincturæ benzoës, āā. gmm. 10.0
 Cetacei, gmm. 5.0
 Unquenti emollient., gmm. 50.0
 Misce; ft. unguentum compos.

An ointment containing subnitrate of bismuth is highly recommended in eczema of children. It is made in the proportion of half a drachm or one drachm of the bismuth to an ounce of simple ointment.

Eczema in persons of riper years is also a common affection, and we can say that a great many cases of it trace its origin to disturbances of the digestion. In other cases, although the organs of digestion are in good order, there are dietetic errors, which retard the assimilation of the nutritious elements. Sometimes the patients take much more food than they can bear, and the food is not assimilated. In the earlier stages of an eczema it is necessary to lessen the quantity of the food, and with light purgatives relieve the stomach and the intestines, that they may regain their normal functions.

In cases of acute eczema, which has been lately considered as a nervous eczema, it is very important to observe the diet of the patient. In these cases the skin is uniformly red and swollen, and œdema soon develops. When the face is affected, the eyelids are closed and œdematous. In some cases it remains in this erythematous condition, the swelling and the redness diminishes, a light desquamation follows, and the skin returns in a few days to its normal condition. In other cases more abundant exudation takes place, and small nodules appear, which are soon changed into vesicles. The vesicles break open easily, and a large quantity of secretion exudes on the surface of the skin. The acute eczema does not last long. The symptoms in a short time decrease in their intensity, and only a desquamation of the epidermis remains. At this time eczema may pass to the chronic stage as an *Eczema squamosum*, but usually recovery takes place. Frequently this disease affects the face with swelling of the eyelids, of the auriculæ, and of the lips, which are hindered in their movements. The penis and scrotum are often affected, showing an intense œdema. The extremities are also the seat of this disease, although not so frequently.

There is no doubt that this eczema has all the characters of a reflex affection. Relapses occur with great persistence, and dietetic errors are the principal cause of its recurrence. In several cases which have occurred in my practice the attack was always preceded by disturbances of the digestive organs.

In such cases, of course, the diet must be regulated; flesh foods must be diminished in quantity, and then taken only once a day, and fried and boiled meat should be avoided altogether. In cases of chronic eczema it is also necessary for the patient to avoid certain kinds of rich salads, pickles, gravies, dressing of fowls, nuts, cheese, ice-cream, etc., which very often produce indigestion, and are the origin of catarrh of the stomach, and dyspepsia.

ACNE VULGARIS.

This is an inflammatory affection of the sebaceous glands and of their excretory ducts, usually chronic, and composed either of papules, tubercles, or pustules, or a combination of these lesions, occurring more frequently about the face. According to the time the disease has lasted, more or less pustules will be scattered on the different regions of the face, forehead, cheeks, nose, chin, and sometimes also on the neck. In some cases the pustules are so close together as to form small abscesses of the skin. When a few pustules are fused together, they make a kind of tubercle, showing a hard infiltration under the subcutaneous tissue. In the center of the pustules is a comedo, which, when suppuration begins, is surrounded with pus. The skin is commonly rough to the touch, the ducts of the sebaceous glands appear enlarged, and the skin is greasy (seborrhœa.)

Comedo appears as a small elevation in the skin, of the size of a pin-head, with a blackish point in the middle. The common name is flesh-worms, or grubs, from the erroneous idea that the small, inspissated plug of altered sebum, which can be expressed from the follicle, is a parasitic worm.

The cause of the comedo is in the alteration of the quality of the sebum, which becomes and remains as a hard mass in the duct of the glands, and plugs the meatus; the dust of the air becomes mixed with the fat, and thus makes the black point. In the fat are found microscopic animals, called *Acari folliculorum*, *Demodex folliculorum*, which are not considered as essentially connected with the affection. Their presence is believed, by the majority of dermatologists, to be merely fortuitous and without significance; but we think that, in some cases, they can also be the cause of the inflammation. In a case of *Adenitis ciliaris* there was found in each pustule an immense quantity of *Acari folliculorum*; and after the contents of the pustules were

discharged, permanent recovery resulted. In one case of acne we saw innumerable comedones spreading, not only on the whole face, but also on the neck. Under the microscope, in each plug of sebum were many *Acari folliculorum*, which, I think, could not have been entirely innocent of the affection.

When the duct of the sebaceous gland is stopped by the plug of sebum and epidermic cells, the gland continuing the secretion can not get rid of it, and in consequence becomes swollen. The irritation is spread to the contiguous tissues, and so a perifollicular inflammation arises, which is revealed in the form of the above-mentioned tubercles in the skin. Slowly the contents of the gland undergo the process of degeneration, and suppuration begins, and thus the contents of the gland become mixed with pus. The small abscesses resulting are at various depths in the skin, and consequently require more or less time to break out; but in most of the pustules the epidermis resists the pressure and the pus is changed into an atheromatous mass, which remains hard in the tissue of the skin. The result is ugly scars.

This obstruction in the sebaceous glands has been variously accounted for by authors. Some believe that at the time of puberty the epidermic production takes on a greater development, an overproduction of epidermic cells results in the glands, with consequent obstruction of the ducts. The chemical alteration of the sebum affords, however, the most satisfactory explanation for this disease. Instead of fluid oleine there is an excess of stearine, which is hard and non-fluid; as a consequence, the glands can not empty themselves of their contents. The retained sebum is a mechanical irritant and causes a proliferation of the epidermic cells, and hence a still firmer mass.

Disturbances of the sexual functions and disorders of digestion have been considered the principal causes of *Acne vulgaris*. Of eighty-nine cases which have come under my care within the past two years, thirty-four were in men and

fifty-five in women. There were disorders of digestion in both the men and women, which were denoted chiefly by constipation, flatulency, acidity of the stomach after eating, etc., while of the fifty-five women, only a few had disturbances in menstruation. I am therefore inclined to believe that disordered digestion is the principal cause. The food must be taken into consideration, as it is well known that buckwheat calls forth, in some delicate persons, a pustular eruption or acne; and crops of acne follow indiscretions in diet, as after partaking largely of fruit-cake, mince-pie, sausages, nuts. I make it a rule to warn individuals afflicted with *Acne vulgaris* against the use of large quantities of fatty foods, since the fat is not changed, but only emulsified in the intestines, and is carried thence as fat to the general system, and a part brought into the sebaceous glands of the skin.

The regular use of a saline cathartic is very helpful, and for this purpose Carlsbad salt, in doses of one to two teaspoonfuls in water daily, has been prescribed. An aperient mixture used by Duhring in the following proportions may also be taken:

R. Magnesii sulphat.,	3j.
Ferri sulphat.,	gr. iv.
Sodii chlorid.,	3ss.
Acid sulphur.,	dil. fl. 3ij.
Infus. quassiae am.,	fl. 3iv.
Misce.	

Sig.—A table-spoonful in a tumbler of water before breakfast.

When the digestion is weak and delicate, the nutrition is bad, and it is necessary to administer iron preparations. The mineral water of Roncegno, which contains a large proportion of iron and a small quantity of arsenic, has proved beneficial. It is easily absorbed and never produces any heaviness in the stomach or disturbance of the bowels, which sometimes follows the use of other mineral waters and preparations of iron.

ACNE ROSACEA.

Acne rosacea is another affection of the skin which frequently finds its origin in the habit of drinking liquors; but it is also caused by the food and by the condition of the stomach. The skin of the face appears red in an erythematous condition, with some scattered pustules; the capillary blood-vessels, in consequence of the stasis, become enlarged and varicose, producing a permanent redness of the affected place. Auspitz in his new classification of the skin diseases, considered this affection as an angioneurotic disorder, and called it *Erythema angioectaticum*. This affection, known to the ancients through its most common cause, the abuse of wine, was also described by the poets; and there is an old epigram which is a fine description of the disease:

“Pompilio est nasus cubitus tres longus et unum
Latus, et hunc murus cingit uterque triplex;
Adsunt et turres, Bacchus quas condidit ipse
Et minio tinctas usque rubere dedit.”

The principal location is the face, beginning on the tip of the nose and spreading thence to the forehead, the cheeks, and the chin, and in very rare cases to the whole face. The reddish-pink color is the result of the injection of the capillary vessels, and with a magnifying glass we can perceive the enlarged blood-vessels as fine stripes. When the skin is pressed with the finger the redness disappears, returning immediately after removing the pressure. The color, after some time, changes from the intense pinkish-red into a bluish tint, which forms a marked contrast to the color of the skin of the neighboring parts.

In the redness, papules and pustules arise in those places where the sebaceous glands are most abundant, which shows that to the erythematous condition of the skin a folliculitis is added, the pustules being real acne pustules. On account of this pustular eruption the redness grows in extent, and increases the inflammatory condition. When this disease is

not cured it lasts for many years without improvement; the tissues, by the hypertrophy of their histological elements, take on an anomalous development, producing irregularities in the skin, which, on the nose, constitute the last degree of *acne rosacea*, called *Rinophyma*.

The cause of this affection is commonly supposed to be the bad habit of drinking wine and liquors immoderately; but the disorders of the digestion, catarrh of the stomach and of the intestines, and dyspepsia are the real causes of *acne rosacea*. The first appearance of this affection, as above mentioned, is in the tip of the nose, which, when not accompanied with the redness of the cheeks, looks like a frost-bitten nose. Together with this redness is a hyper-secretion of the sebaceous glands, which makes the nose brilliant and shiny, and the people affected complain about a warm sensation in the nose, especially after their meals and in the evening. This affection I have found not only in gentlemen, but also in many ladies of great refinement and education, who were perfectly temperate, and who had never tasted a drop of liquor or of wine. The affection in them was the result of catarrh of the stomach. Regulating the diet and ordering the use of Carlsbad salt produced good results upon the digestive troubles; and repeated scarifications of the enlarged blood-vessels brought the nose to its natural color. When the affected individual is a drinker, there are differences according to the drink. The copper nose is due to the free use of wine, and especially to the white acid wine, the Rhine wine, Catawba, Delaware, California, etc. In these cases the red color is very intense. After the use of whisky, brandies, etc., the nose becomes red too, but it takes a longer time, the redness is not so vivid, and it has a livid appearance. In people who drink large quantities of beer, the whole face grows red.

The same redness can be caused by the abuse of aromatic substances, strong sauces, Worcestershire sauce, too much mustard, pepper, vinegar, etc. The real cause of the affec-

tion is an angioneurotic disturbance, from the continuous hyperæmia in the blood-vessels of the face, which by repetition produce paralysis of the vasomotor nerves and stasis. The blood-vessels lose their tonus, remain enlarged or varicose, and are perceptible upon the face as red stripes.

Concerning the local treatment of *Aene vulgaris* and of *Aene rosacea*, we must point out a remedy which has proved very successful, Ichthyol. *Natron sulfoichthyolicum*, referred by Unna to the *reducentia*, reducing agents, and comprehended in the group with pyrogallol and resorcin, produces an induration of the tissues and a contraction of the small blood-vessels, which diminishes the stasis. The consequence of this action is to diminish the exudation, which is the result of the capillary stasis. Ichthyol, in a mild dose, does not greatly affect the epithelium, and in a short time we see a remarkable improvement. When the epidermis is very thick with many hard pustules, then a stronger dose of ichthyol is required, so as to act through it on the blood-vessels and reduce their caliber. Some of the pustules are easily involved, and by resolution they disappear; others pass promptly to a suppurative state, their contents are discharged, and the pustules heal up in a short time. We prefer to mix ichthyol with Unguent. Diachyl. Hebræ, in the proportions from one drachm to two, to one ounce of ointment. This is spread over a piece of cloth, and applied upon the affected place at night. In the morning, with a little sweet oil the salve is wiped off, and the patient can wash his face with some ichthyolic soap.

Other favorite remedies are in use in this affection; but from our experience, ichthyol has proved to be superior, as it is easily applied, and can be used in association with other remedies without inconvenience. The application of sulphur very often produces irritation of the conjunctiva, and can not be used with unguentum diachylon, as it stains the face.

The pustules in *Aene rosacea* must be opened; and the largest blood-vessels, apparent on the skin as red stripes,

must be cut through with a small bistouri, so as to diminish the stasis of the blood by the light bleeding, and produce their obliteration.

ERUPTIONS FROM POISONOUS PROPERTIES OF FOOD BADLY PRESERVED.

Thus far we have considered only those affections of the skin which are produced by the food not well digested in the stomach, either on account of its qualities, or in consequence of some disorder of the digestive organs, by which a reflex action and eruption were occasioned. We must now pass to the consideration of those diseases which are the result of poisonous properties developed in the food itself, on account of defective preservation.

These diseases are infectious in character, but inasmuch as the skin shows some peculiar symptoms in them, we mention them here.

PELLAGRA.

This is an endemic disease, which was first known in the second half of the last century, from the descriptions given by Frapolli, Odoardi, Gherardini, Strambio, and others. The disease is common among the poorest class of peasants in many places of the north of Italy and in the south of France.

The eruption consists in an erythema, which is symptomatic of the disorders of the system. Large red spots elevated on the level of the skin appear upon the back of the hands, forehead, nose, and neck, in all those parts which are more exposed to the sun, in the Spring and Summer. In Fall the erythema disappears with an abundant desquamation, leaving the skin heavily pigmented, thin, and at the same time hard like parchment. At the time of the eruption the patient has a sour sensation in his throat, is weak, does not like company, has no ambition to work, and seeks rest. This is the first stage of pellagra. In the Fall the patient is better on account of some better nutrition

taken during the Summer, and the erythema disappears. The next Spring, however, the red erythematous spots appear again with greater intensity, and the patient complains of headache, dizziness, and stiffness of the muscles of the extremities. In this condition the disease may last for some years, but finally alterations of the organs of sense and faculties of the mind occur. The poor creatures become stupid and melancholic. The delirium is very often a religious one, with a tendency to suicide, which is effectuated by drowning.

Together with these alterations occur colliquative diarrhoea, hydrops, and marasmus, and death results.

The most accurate description of this disease was given by Dr. Ballardini and Professor Manassei of Rome, in 1861. The cause of the disease has been traced to the corn-meal, which is the exclusive food of those people, especially in Winter time. In many places where the *Zea mays* was not cultivated, no pellagra existed, and the disease showed itself only after the cultivation of the corn became more general, and people made it the principal article of food.

Many authors, as Landouzi, and more recently, Winternitz, denied the causal nexus between corn and pellagra, but unfortunately we can not deny a fact which is every day before us. Corn-meal is a very good, healthy, and nutritious food when it is sound and of good quality, but when it becomes altered it acquires poisonous properties. Dampness or humidity seems to be the cause of the alteration of the corn, which takes on a green color produced by a mold or fungus called *Sporisorium maydis*. The peasants sell out the best corn, which comes in full season, retaining for their own use the corn which comes later. When the rains begin the corn does not become entirely dry, and stored in that state, it undergoes the above-mentioned alteration, and becomes moldy.

In the southern part of Italy, where also corn-meal is used as the chief article of food, pellagra is unknown, because

there warm weather lasts longer, and the corn has time to dry, while in the northern part, where the rains and the cold begin earlier, pellagra occurs very frequently. When the corn-meal becomes so altered and is eaten, the peasants complain of a burning sensation in the pharynx and in the stomach, and their food becomes repugnant to the taste. We saw several cases of pellagra in the Hospital of Rome, Italy, and as the disease was in its beginning, they recovered entirely by the use of sound vegetable and animal food. In Summer the peasants are always better, and in the Fall all symptoms of this poisoning disappear, but when Winter comes, and the peasants, on account of their poverty, are again obliged to eat corn-meal as their exclusive food, then the disease is aggravated.

The condition of those miserable peasants is so heart-rending that it called the attention of the Italian Parliament to the matter.

ACRODYNIA.

Acrodynia, or *Erythema epidemicum*, is another form of infectious disease arising from bad food. It visited Paris from 1828 to 1830, and according to Hirsch,* attacked over forty thousand of the population. It rarely occurs now, except in isolated cases among soldiers in the field.

The eruption appears upon the skin of the hands and feet, in the form of swelling, with reddish, livid spots, and sometimes with vesicles and bullæ. The eruption is accompanied with a feeling of formication, a painful prickling and burning sensation. It sometimes appears also on the skin of the arms and of the abdomen. After some time the epidermis becomes loose on the feet and hands, leaving the affected part white and deprived of pigment, while the unaffected parts are full of irregular pigmentations, looking as if soot were spread over the surface, especially on the breast, the armpit, and the abdomen. In connection with these

* Handbuch der Historisch-geographischen Pathologie.

symptoms of the skin, there is numbness in the limbs, with shooting pain, involuntary movements, spasms of the muscles, and contractions, resulting in an inability to walk. In some cases, after four or six weeks, the symptoms begin to subside, and the patients recover; in more severe cases, colliquative diarrhœa, marasmus, and delirium occur, and result in death.

The cause of this disease seems to be, like that of pellagra, an altered quality of the food.

ERGOTISMUS.

Ergotismus is an affection which now very rarely occurs, on account of the sanitary laws in reference to the alimentary substances. Once it was very frequently observed to follow the use of rye-bread, when its meal contained ergot. On the grains of rye a parasitic fungus is developed—*Claviceps purpurea*, or *Oidium abortifaciens*—which by its vegetable functions changes the grain into ergot. By the use of bread containing ergot, two forms of poisoning arise,—one called *Ergotismus convulsivus*, and the other *Ergotismus gangrenosus*. The first begins with headache, vertigo, noises in the ear, general debility, to which symptoms are added vomiting, diarrhœa, thirst, and in the limbs a feeling of formication, numbness, and afterwards spasms of the muscles, tonic contractions, death from tetanus closing the scene.

The form of *Ergotismus gangrenosus* is characterized by spots of gangrene on the toes, which sometimes remain limited to them, and at other times affect the whole foot. We have seen a whole foot which had fallen off from dry gangrene from ergotismus. The foot was hard and mummified, like a piece of wood.

The cause of the gangrene was at first attributed to the fungus of the ergot, which, by getting into the blood, obstructed the blood-vessels, and thus caused gangrene. But this explanation was not accepted, because no proof exists that the spores of the *Claviceps purpurea* enter the blood;

so the explanation was offered that a contraction of the muscles was caused by the ergot, which kept the blood-vessels in a state of continuous spasm, preventing in this way the circulation of the blood in the extremities, with consequent gangrene. But the continuous spasm of the blood-vessels and of the muscles could not be proved; consequently this theory fell like the other. In recent times Draggendorf, Bodwissocky, Zweifel, and Nikitin proved that sclerotinic acid and scleromucin, the active elements of the ergot, had their principal action upon the nervous centres, diminishing the reflex activity in the spinal cord, and that in the ergotismus there are paralysis, paresis, anæsthesia, etc. Consequently the gangrene would be only an indirect effect of the paretic condition, in the same way in which decubitus and Decubitus gangrenosus occur in patients suffering from paralysis.

In many places in France and Germany epidemics of ergotismus occurred, and were accompanied by a most frightful mortality.

When one thinks what dreadful diseases may result from the ingestion of food which is bad, or which has undergone such changes as have been mentioned, he will acknowledge that the greatest care should be taken, both by governments and private individuals, to prevent such diseases.

LIQUIDS.

In order to complete the subject of the influence of diet in skin diseases, we must briefly touch upon the different liquids which are commonly used in our domestic life.

WATER.

Animals use water alone to satisfy thirst, and man in his primitive condition knew no other drink. There are peoples to-day who know almost nothing about fermented liquors. In short, water is absolutely necessary for the life, and fermented liquors are not. In hot weather, when the

season is dry, diseases often occur that should not be attributed to the hot temperature, but to the quality of the water.

The characteristics of good water are: no sediment upon standing, especially after being boiled; no color, odor, or taste; vaporous in Winter, cold in Summer; it should dissolve soap and various vegetable principles, and should make good bread.

The good quality of water depends greatly upon the good qualities of the air, so that the air and the water are both connected in that respect. When the water has no air, as distilled water, it has no taste and produces a disagreeable sense of heaviness when taken into the stomach; but when it is well shaken up in air, it absorbs oxygen, and becomes agreeable and healthy. The water which remains quiet for a long time acquires bad properties, although no impure substance come into contact with it. In unused wells the water is foul and impure.

Ice-water is the cause of more complaints in Summer than the heat; for, although water cooled with ice is good and refreshing, melted ice sometimes produces stomach and intestinal disturbances. Hippocrates wrote that water obtained from ice or snow was unwholesome, because it was deprived of air in the process of freezing: "*Ex gelu et nivibus potus sunt insaluberrimi, quia exutum est inde quod tenuissimum est.*" We know that this subtle principle is the air. Aristotle entertained the same opinion, and recommended that the water collected from the ice should not be used as a drink unless shaken in the air for some time. De Haen maintains that the water collected from ice is good when exposed to and shaken in the air, in order that it may be saturated with the air again. Water loses in freezing not only air, but also many of the mineral salts.

Henry Parville published lately an article of great interest on the presence of microbes in the ice, when produced by impure water. It was believed that the cold temperature of the freezing point was able to kill any micro-organ-

ism; but Parville demonstrated this opinion to be incorrect, and made known the danger in the ice taken from foul waters. Many microbes found in the ice are of no deleterious action; but as there is also found the bacterium of suppuration and of the typhoid fever, in the State of Connecticut regulations have been established for the sale of the ice, forbidding the sale of what is taken from swamps and stagnant water. Parville found in one cubic centimeter of various waters different quantities of bacilli. In the water of Cortland there were 2,621, and in the water of Hudson 3,448. A great many of these bacilli die at the freezing point; some, however, survive the low temperature, and these are just the most dangerous.

It is further necessary to remark that ice-water sometimes is unhealthy for another reason; namely, that it is frequently prepared in a closed receptacle, which has not been properly cleaned, and as a consequence it lacks air and is otherwise filthy.

Water for drinking purposes may be divided into two general classes—meteoric and terrestrial; the first being that derived from the atmosphere by rain, the second from springs, rivers, lakes, etc. Spring water is the best, when the soil through which it passes is not contaminated. River water comes next in point of preference. It is commonly good and healthy, though in flowing it always carries some substances which make it turbid. Experience has demonstrated that water taken from the middle of the river is much better than that taken from near the banks. When the water of the river is very low, and the stream is slow, the conditions of the water are not so good as when the stream is rapid. When sewers are opened into the rivers, the water is contaminated and dangerous. River water containing mud when drawn, is better filtered before using for drink.

Cisterns should be in contact with the air, be stirred up frequently, and should not be near vaults, sewers, etc., which can corrupt the water. The best water is that which comes

from fountains; and the old Romans spared no expense in building them for the benefit of the people.

We have here mentioned water as a drink, not because drinking water may be a direct cause of skin eruptions, but because good and wholesome water is a necessity for the general health, and consequently for a healthy skin.

A seborrhœa of the nose is described as caused by frequent and copious draughts of water, and has been called the seborrhœa of water-drinkers. The part which is more frequently affected is the nose, and also the cheeks. The nose especially shows a yellowish-white color, and is covered with a fatty, oily secretion, which can be collected on a piece of blotting-paper. The grease remaining on the nose catches the dust of the atmosphere, and causes a dirty appearance of the affected parts.

WINE.

The use of wine is very ancient. Its invention is ascribed to Noah, while the pagans believed that it was Bacchus who taught to men the art of making it. At any rate, Bacchus was considered a benefactor of the human race. The abuse of this precious liquor has always caused great inconveniences, and it was early found necessary to establish laws to moderate its use. The Chinese began to cultivate the grape in their country, but stricken by the sad consequences of the abuse of wine, a strict law forbade its cultivation. The ancient Roman women were forbidden to drink wine, and the men were not allowed to drink it till arriving at the age of thirty years. Metellus is reported to have killed his wife because she drank wine. In Spain, when one was known to have been drunk only once, he was debarred from going into court as a witness. Such laws as these are quite wrong, because they interfere with the beneficial effect which can be secured from the moderate use of wine. The many are made to suffer on account of the few intemperate persons who are not able to control themselves.

Physicians are divided in their opinions as to the use of

wine, so that while some praise it as an excellent remedy, others believe it to be a poison. The followers of Brown would have refused the practice of medicine without wine and opium. Haller wrote that wine ought to be considered a remedy, and not a drink. It is reported that Haller when a boy was very fond of wine, and once used it to excess; but, seeing some of his friends drunk, he was so ashamed that he never more drank a drop of wine in his life.

We must not go to this extreme, and must recognize that the right use of wine is not evil, but is useful. It is the abuse that is the cause of sad consequences. In treating patients with skin diseases, we are very often asked if they may drink wine. In some other cases we must advise the use of wine as a tonic. In cases of acute skin eruptions, with inflammatory symptoms, *Eczema acutum*, zoster accompanied with fever, etc., the use of wine should be forbidden. In cases of *Eczema chronicum*, when the general system shows symptoms of chlorosis, the stomach has difficulty in digesting the food, and the functions of the bowels are torpid, a small glass of wine at each meal may be allowed. But we desire to make ourselves understood as to the quality of the wine, so that it may be useful for the health of the patients. It is almost needless to say, but it is important to recollect; that the wine must be genuine and not adulterated, for when adulterated it is a poison, and must be avoided.

In order to select a good quality of wine, which may agree with the conditions of the patient, we must briefly consider the chemical constitution of this liquor. This results from the fermentation of the juice of the grape, which contains alcohol, sugar, malic and tartaric acid, tartrate of potassa, acetic acid, coloring matter, tannin, and in some red wines, iron, and an aromatic substance which makes the bouquet of the wine, and which is known as ænanthic æther. The classification of wines is according to the proportion of the principal components; so we have alcoholic wines where alcohol is abundant, tonic wines where tannin and tartaric

acid are in excess, and sweet and acid wines which contain carbonic acid. The alcoholic wines, such as Marsala, Angelica, sherry, and Madeira, where the alcohol is from seventeen to twenty per cent, and even more, are used as stimulants in cases of typhoid fevers. In domestic life these are called dessert wines, and their use is not advisable in general cases. The wines which we can recommend for the table are the red wines, which we consider to have a tonic action. The American wine manufactured from Norton's Virginia Seedling is good; it has from eight to nine per cent of alcohol, and contains tannin in abundance, with some coloring matter. Burgundy and Bordeaux wines, and the red Italian wines of Tuscany and Lombardy can be highly recommended.

The sweet and acid wines, among which we comprehend Champagne wine and all the sparkling wines, are used as a luxury at the close of a banquet, but are not recommended for the stomach and for general domestic use. Champagne wine causes a roscola and urticaria in delicate ladies. Frequent use of them is the cause of acidity in the stomach and disorders of the digestion.

For the reasons stated, we deem it best to restrict the use of wines to those which we call tonic, and which can be mixed with water during meals. Tonic wine in moderate quantity improves digestion by stimulating the secretion of the gastric juice, and increasing the peristaltic movement of the stomach and the intestines. In this way it has a beneficial result.

The intemperate use or the abuse of wine we have already stated to be the cause of hyperæmia and stasis in the capillary blood-vessels of the face, producing as its result the pink-red nose and cheeks, *Acne rosacea*.

BEER.

We can not close this section without saying a few words on the use of beer. Many patients with skin disease ask

the question: "Can I drink beer?" Before answering the question we must see what beer is. Beer is a drink known from remote antiquity, and is next to wine. It was called by the ancient Romans *Cerevisia*, wine of Ceres, or wine of wheat. The old Egyptian priests used this drink, and the Germans for many centuries used only beer, before knowing any thing about wine. When the grape began to be cultivated in the northern countries, the use of beer somewhat diminished, increasing in the south, where wine is abundant. In France and in Italy beer is used on a large scale; so that in France alone there are already three thousand breweries, with an output of one hundred and sixty million gallons annually.

We can say that beer, when duly prepared with good materials, is a healthful drink. But of course when cocculus instead of hops is used, or some other bitter drug not so expensive, the beer is adulterated.

The principal ingredients of beer are water, barley, or occasionally wheat, hops, and malt. The best water for beer is river water, when soft, and the barley must be ripe and of good quality. The barley, after having been moistened and allowed to germinate, is dried by heat. Upon these operations depends the good quality of the beer, as well as upon the skill of the brewer in directing the fermentation. Beer when too new is not clear, does not agree with the stomach, and sometimes causes flatulence and dysentery. The clearness of beer is one of the best proofs of its quality. When the beer is turbid, it must be avoided.

There are innumerable qualities of beer, according to the way in which it is prepared, the country where it is manufactured, etc. In England there are ale, porter, stout, and ginger-beer. Here in the West we have Cincinnati and Milwaukee beer, which resembles more the *Loewen Brau*, or Lion brew, of Munich.

There are strong beers, like ale of Burton, which contains nine per cent of alcohol; but the common beer, called

the middle beer, such as the Cincinnati lager, contains from one to two per cent of alcohol, with a specific weight of from eleven to thirteen per cent.

Beer, especially in Summer, is a good and healthful drink, quenches thirst, stimulates slightly the stomach with its bitter principles, and helps digestion. The urinary secretion and also the mucous secretion are slightly increased, and we can say that beer agrees with the generality of the people. Strong beer, containing eight or nine per cent of alcohol, very easily produces drunkenness, which is very heavy and stupid. Common lager-beer, when it has stood a sufficient length of time in the vault or other cool place, can be allowed in moderate quantity to any body. We do not know of any skin eruption caused by beer, only the abuse of it is liable to produce *Acne rosacea* spread all over the face. We avoid giving beer in cases of *Eczema acutum*, and in chronic eczema when accompanied with troubles of the digestion. In the same way in gouty individuals suffering with eruptions of the skin, beer must be forbidden.

ALCOHOLIC LIQUORS.

Having spoken of wine and of beer, we must also answer the question of some patients, "Can I use whisky to drink?" I answer, *No*. Alcohol was discovered by the Arabs when subjecting every thing to the power of fire in order to transmute it into gold. They tried wine, and from that they obtained a spirituous fluid, light and inflammable, which they called *alcohol*. In 1300, when the Arabs invaded Europe, they made known this substance, which was first mentioned by Arnaldo da Villanova, who employed it as a therapeutic agent. Morwood maintains that alcohol was at a more remote period already known in China and in other parts of Asia and in Africa. Other authors believe that the discovery of alcohol must be attributed to Albucasis, an Arab physician in the twelfth century, and still others are of opinion that alcohol was discovered by Raimondo Lullo in

the thirteenth century. Anyhow, reading the work of Arnaldo da Villanova (*De conservanda juventute et de retardanda senectute**), we find *aqua vitæ* (brandy) highly praised as a remedy in many diseases, and as capable of healing up wounds, curing cancer of the mouth, and epileptics and patients afflicted with dropsy.

The art of distillation at that time was not greatly advanced, and in consequence alcohol contained much water, was known only as a medicine, and was not sold except in the drug-stores. It was not until the year 1514, when Louis XII allowed the distillers a separate corporation from the vinegar fabricants, that *aqua vitæ* began to be used as a drink. Man has a kind of instinct for alcoholic drinks, and the abuse of it very soon began, with the evil consequences. When Columbus discovered America, he had abundant provision of *aqua vitæ* (brandy), and as soon as the savages tasted that liquor they were willing to join the Europeans, and many of them offered their services to the celebrated discoverer.

The evils, moral and physical, caused by the abuse of alcoholic drinks are innumerable. We can say, without fear of contradiction, that three-quarters of all the crimes perpetrated in society are committed under the influence of liquor, and rightly does legislation strike at the man who has the habit of drinking for the sake of getting drunk. The man who yields to the habit of using alcoholic drink, in consequence can no more eat or digest his food without taking the pleasant poison. Terrible diseases affect the liquor-drinker—gastritis, delirium tremens, Paralysis agitans, etc.—which, when they do not kill the man immediately, leave him a stupid wreck for the whole of his life. Society is also threatened by other sad consequences of the alcoholic habit. Fecundity is diminished, and the population does not increase; the children of parents used to drinking alcoholic liquors are weak, and very often suffer with nervous diseases,

* Arnaldo da Villanova, op. omnia, Basileæ, 1595, page 332.

cornea, epilepsy, and insanity. It is not my object to investigate all the sad consequences of the abuse of alcoholic liquors; therefore I return to my argument. A man in good health needs alcoholic liquors? No! The man in good health not only does not need brandy and whisky, but it is very wrong to begin this infernal habit; and I think every physician ought to make all efforts to persuade his patients that even the moderate use of whisky or brandy is not only of no benefit, but it is pernicious.

The skin diseases which are caused by the immoderate use of alcohol we have mentioned already—Acne rosacea, red-pink color, especially of the nose, with abundant fatty secretion from the hyperæmia and stasis of the capillary blood-vessels of the skin.

Renault* recognized in the use of alcohol the most powerful cause of the appearance of the late cutaneous manifestations of syphilis, as well as other affections of the skin. It can be considered a cause of irritation of this organ, as it is eliminated through the skin. A small dose produces a general nervous excitation, and a large dose depression. It diminishes the amount of carbonic acid exhaled, and lowers the temperature. Finally, it causes a tendency to fatty changes in the tissues. Bulkley refers to a case of hydroa where bullæ had developed twenty times within seven years, and almost every attack was the consequence of alcoholic abuse.

In conclusion, while alcoholic liquors are to be avoided in the healthy condition, they must be strictly prohibited in cases of skin eruptions.

COFFEE AND TEA.

Among the civilized nations to-day it is the habit to drink at each meal a cup of coffee or of tea, alone, or mixed with some cream or milk. Here we find many patients questioning whether they can drink coffee or tea, and which is the better of those drinks, etc.

* *Essai sur l'influence de l'alcoolisme et These.* Paris, 1874.

Coffee is the seed of the *Coffea Arabica*, so called because originally found in Arabia. It is a tree fifteen feet high, always green, the leaves opposite, oblong, and acuminate; the flowers are white and very odorous; the fruit is bacciform, round, resembling a cherry, and filled with a kind of pulp of sweet taste, having two locula with seeds, one in each loculum. The seed is convex on one side and plain on the other, with a furrow in the middle. Innumerable are the qualities of coffee in the market. Mocha is the best for its aroma. Coffee is used after having been roasted to develop its aromatic principles. The vegetable, fatty substances which are abundantly contained in the coffee-seed, and also the caffeine, which is diminished after having been roasted, produce two volatile aromatic bitter principles which give the aroma to the coffee. Coffee prepared either by infusion or decoction, or by distillation, is always a pleasant drink. Its action is at first remarked on the vasomotor nerves, increasing the contractility and the tonus of the blood-vessels, strengthening the circulation, without great difference on the number of the pulsations. Digestion is promoted by a cup of coffee, increasing the secretion of the digestive fluids, especially of the bile. Coffee increases the nutrition of the body, and prevents its waste. It is considered as the best stimulant of the nervous system, and therefore very useful for the brain. Especially in hot climates it is good for preventing dynamic collapse, which is very dangerous.

In our country the use of coffee is general. Abuse of coffee we find among the Turks, who drink as many as twenty cups a day. Here nearly every body takes coffee at least twice a day, alone, or mixed with milk.

Coffee has had many enemies, and we read of a governor of Mecca in the fifteenth century who forbade the use of coffee; but in Egypt at the same time the sultan allowed its use. From Cairo the use of coffee extended to Constantinople, where the mufti forbade its sale, because the people who

were wont to go to the mosque for worship went to the coffee-houses instead, to drink the aromatic potion. The Grand Vizier Kupruli closed the coffee-houses; but in spite of that, the Turks continued to drink it. The first coffee-house in Europe was at Marseilles in 1659, and the use of coffee was introduced into Paris by Soliman Agâ, minister of the Sultan Mohammed IV.

At this time there is not a small village where there is not a coffee-house.

We have nothing to say against coffee, and we believe it to be a healthful drink, capable of improving the digestive faculty of the stomach, and a stimulant of the nervous system; therefore we have no reason to forbid it to our patients if they take it in moderation once or twice a day. We will remark, however, that it is better for nervous individuals affected with insomnia to refrain from this drink, as it stimulates too much their nervous system. No skin eruption has even yet been attributed to the action of coffee.

Tea is a milder drink, prepared by infusing the leaves of the *Thea Sinensis*. This is a small tree spontaneously growing in China and in Japan, its native country; it is eight or ten feet high, with leaves ovate acuminate, glabrous and shining on both sides, coriaceous and firm. The flowers, varying from white to red, resemble the rose, without fragrance. In commerce there are innumerable varieties of tea, and at very different prices, according to the species of the plant, the time when the leaves have been gathered, and the different modes of cultivation and desiccation. The different kinds of tea are comprehended under two classes—green and black. To the green teas are referred the varieties Hyson or *heysewen*, Hy-tiann, Schulan, *pearled tea*, which is in small granules, so as the better to preserve its aroma, also called imperial tea, because it is used by the emperor, and gunpowder tea, when it is in smaller granules. The black tea has two kinds—Souchong and Pekoa. The active principle of tea is theine, an extractive azotized substance like caffeine,

which is more abundant in the green qualities than in the black. Adulteration of tea occurs very often in commerce, and consists in dyeing the black varieties with an artificial green color, so as to sell it at better prices. Tea is exclusively prepared by infusion, and its physiologic action is due to the tannin, which gives an astringent action, and to the theine, a stimulant and nutritious principle. Moreover, tea has also a diaphoretic and diuretic action. Tea is a very good and wholesome drink for weak people suffering with indigestion. It is not so strongly stimulant as coffee, and therefore we can advise the use of tea instead of coffee, to patients who are nervous, easily excitable, or suffering with insomnia, as a milder and more appropriate drink.

CHAPTER XIII.

EXTERNAL CAUSES OF SKIN ERUPTIONS.

THE skin is more exposed than any other part of the body to the action of surrounding objects. Hence it is more subject to evil influences from them, which may lead to disease. Furthermore, there are many parasites which find on the skin a propitious ground for their development, and the result is a skin eruption.

It is easily understood that these causes act directly on the skin, and that the general system has nothing to do with the production of the disease. There is some peculiarity in the symptoms on account of the reaction of the organism, but the cause of the disease is not changed. For instance, scabies, which is the result of the presence of the *Acarus scabiei* in the skin, in some individuals is accompanied with a scanty papular eruption, while in others it shows itself in abundant pustules and vesicles. The cause is the same, the acarus; the symptoms are diverse, on account of the greater

or less delicacy and impressionability of the skin, which acts as a stimulus in different ways in different individuals. Here the eruption is nothing else than the reaction of the skin from the local cause, which is capable of producing the same results in every one.

INFLUENCE OF THE AIR ON THE SKIN.

The air, the *pabulum vitæ*, which, like an ocean fifty miles deep, surrounds our globe, maintains animal existence through the most interesting function, respiration. Lungs and skin both absorb oxygen, and the skin is influenced by the air through its action on the general system by respiration, as well as by direct contact. The functions of the skin are so intimately connected with the function of respiration that we can not mention the one without briefly referring to the other.

Respiration in its last analysis is nothing else than a combustion, producing and maintaining the warmth of the body. The combustion of carbon and oxygen in the lungs is a process precisely similar in effect to a union of the same substances out of the body, the result being the evolution of caloric, and the production in both cases of carbonic acid. From this vital process results the power of animals to withstand the variations of the atmospheric temperature, and to maintain the bodily temperature in a normal condition constantly at 98° Fahr.

In the frigid regions of Labrador and Greenland, where the external temperature is often more than one hundred degrees lower than that of the body, it is just as possible to maintain the heat of the body as in the land of the Amazon and in Malaysia, where the temperature of the air and of the body is nearly alike. The use of heavy clothing and of furs is very efficient in retaining the warmth of the body; but the most active factor to endure so cold a climate is the more condensed atmosphere, and, consequently, the greater amount of oxygen inhaled in the same bulk of air. But

combustion being more active, it is necessary that there be more carbon, and we find that the food of the inhabitants of those regions is composed in great part of fatty and oily substances, which contain a large proportion of carbon. The combustion of this larger amount of carbon, of course, develops a proportionately large amount of caloric to compensate for its increased abstraction by the external cold. In the higher latitudes, there is a continual tendency to a reduced temperature, requiring the consumption of an extraordinary amount of oxygen and a more rapid development of heat. In the equatorial regions, on the other hand, the tendency is the other way, as is the case also in the temperate regions during the heat of Summer.

The skin is the great regulator of the temperature. The perspiration which it exhales in quantities greater or less, according to the external heat or the activity of the circulation, evaporates, and by its evaporation carries off the surplus caloric, till the temperature of the body is reduced to its proper standard. Every body knows that in Winter the sensible perspiration is less in amount where the external air is colder than the body, and is very copious in Summer, especially under any excitement capable of increasing the temperature of the body. The air, therefore, must be carefully studied by the hygienist, perhaps more than the articles of food. The respiration is not controlled by the will, but is a continuous process. We are not often aware of the evil effects produced in our system. Upon first entering a crowded or confined place, the sense of smell reveals the impurity of the air; but after a time the senses become blunted, and then succeeds a sense of discomfort, headache, etc. Compare a farmer's daughter working in the free air, supplying her blood with plenty of oxygen, with a young lady living in a monastery or obliged to work in a crowded factory, breathing confined air, and you will find a difference in the skin. The rosy color of the cheeks of the first will form a marked contrast with the pale and emaciated appearance of the latter.

Good and pure air, associated with exercise, promotes the functions of the skin, assists in the removal of irritating elements from the blood, increases the vigor, purifies the complexion, and enhances beauty. A sedentary life, on the other hand, in confined air shows its evil effects in a pallid and discolored skin, incapacity for exertion, headache, dyspepsia, and frequent eruptions of acne, especially on the face. In confined air we find a decrease of oxygen and an excess of carbonic acid, producing in the system an accumulation of carbon, with the inhalation of poisonous gas. In highly heated and crowded rooms the system is not only deprived of the means necessary for its invigoration, but it is also subjected to circumstances which directly depress its vital powers and render it unable to overcome the effects of the cold air; and therein lies the secret of catching cold. The nervous and circulatory functions of the skin are in an excited condition, in order to compensate for the deficient functions of the lungs. When exposed to the pure air, the low temperature causes a sudden contraction of the cutaneous blood-vessels, driving an amount of blood to the central organs, which is revealed in the different forms of hyperæmia or of inflammatory processes. This is the reason why remaining for a long time in a lecture-room, in church, or in the ball-room, carries with it, upon going out into cold air, the danger, to use the common phrase, of taking cold.

The old opinion was, that the cold air suppressed the functions of the skin, and that the excretory substances, being reabsorbed, were thrown as a burden upon the different organs, producing dreadful effects. But we have no reabsorption; there is only a contraction of the blood-vessels, and the flowing of the blood from the periphery to the center. The man who remains a long time in a crowded or confined space breathes air containing very little oxygen and highly saturated with carbonic acid, a result which is produced by the respiration of the assembled people and the combustion of oxygen by the stoves, fireplaces, or gas. The

air so deteriorated depresses the system and diminishes its reactive energy, so that it is unprepared to meet the emergency. In a healthy, vigorous condition, under ordinary circumstances, the internal organs, instead of being overcome by the sudden irruption of the cold air, will be stimulated by it to a healthy reaction, and the whole system feel a genial and invigorating glow.

We have no diseases of the skin produced from taking cold, as was formerly maintained; but we know that the influence of the air in invigorating the whole system has, of course, its beneficial influence also on the skin. The foul air of poor dwellings, where many people sleep in the same room, is as pernicious to the skin as it is to the general health; and very often we find eczema, roseola, or erythema in those people who live under such miserable conditions. The question of pure air is connected also with that of food, because people who live in unhealthy dwellings use also bad food, and the reason of their eczema, erythema, etc., is to be found both in the foul air which they breathe and in the food which they eat.

CHAPPING OF THE SKIN.

The direct contact of the air with the skin is capable of producing some alterations in the latter. The uncovered skin of the face and of the hands becomes dry in Winter because of the cold wind; and very often small rhagades or fissures are produced, which are painful and annoying. This condition of the face and of the hands is commonly known as chapping, which, although not a true eczema, is the beginning of an eczematous process. Soap and water on the chapped face and hands are irritating, and liable to produce eczema. In order to prevent chapping of the face and hands in Winter, care should be taken not to wash them too often, and when washed they should be thoroughly dried. The water must not be too cold, nor must it be too warm, but just tepid, because very cold or very warm water

is injurious to the skin. The soap must be of good quality, and very suitable for the skin.

For persons with delicate skin the use of some ointment or fatty substance is desirable after washing. Glycerine, because of its great avidity for water, when used on the chapped face or hands, is painful, and after some time leaves the skin drier than before its use; consequently it should be avoided. Cold cream, when fresh and well made, is an elegant and useful preparation, with a grateful odor from the rose-water, which is incorporated with the other ingredients. It is a pleasant, cooling application; but it is necessary to be careful that it does not become rancid, in which case it would be an irritant. It is made as follows:

℞. Expressed oil of almonds, 3iij.
 Spermaceti, 3j.
 White wax, gr. cxx.
 Rose water, fl. 3ij.

Melt together over a water-bath the almond oil, spermaceti, and wax, then gradually add the rose-water, stirring the mixture constantly until cold.

In cold days ladies can cover the face and hands with a little cold cream, dusting over a little rice-powder to protect the skin, and in this way chapping may be prevented.

When, however, the skin is already chapped, red, burning, and bleeding, I would recommend Wilson's ointment, which is a benzoate of the oxide of zinc. The formula for its preparation is as follows:

℞. Prepared lard, 200 parts.
 Gum benzoic, pulverized, 5 parts.
 Digest with a gentle heat for twenty-four hours, in a closed vessel, strain, and add
 Oxide of zinc, 40 parts.
 Mix thoroughly.

This ointment is a very good one, and is also used in slight cases of eczema. Its astringent action upon the skin heals up the fissures, allays the burning sensation, and restores

the skin. We can also recommend, especially for the lips, the following preparation :

R. Oil of sweet almonds.

Fresh mutton suet, āā 3j.

Bruised alkanet root, q. s.

Make a salve.

In winter time when ladies go out, it is advisable for them to cover their faces with a veil, which must not be so tight as to interfere with the movements or rub the skin, but must be loose. The hands must also be covered when going out, the wearing of leather gloves being very useful in preserving the delicacy of the hands. A fine hand, especially in a lady, is always pleasing, and is next to the charm of a beautiful face ; and a woman has an undoubted right to be proud of a fine, delicately tapered hand. Short, thick, ill-shaped fingers show a mean extraction, neglected education, and a hard, laborious life. On the contrary, a white, smooth hand, diversified with bluish veins, presenting to the touch the softness of satin, and to the eye the grateful color of milk, is the *ne plus ultra* of beauty, perfection, and attraction. Ladies, therefore, ought to take care of their hands, in order to prevent roughness and wrinkles, which are caused by exposure to cold air, especially after having been washed.

CHILBLAIN.

The cold air, striking on the skin of the extremities, is capable of producing inflammation, which is known as *Dermatitis congelationis*, commonly called chilblain. It is not necessary that the temperature of the atmosphere should be under zero (Fahr.) to produce this dermatitis, for it may appear at a milder temperature. Under the influence of cold, the blood-vessels of the extremities are contracted, and they remain so until a warm temperature releases the contraction. A limb exposed to a cold temperature appears white, but when warmed becomes red, of a bluish-livid color. The contraction of the blood-vessels is followed by a kind

of vascular paralysis, with stasis and all its consequences. When the cold has operated for a long time, and the water of the tissues becomes frozen, the death of the organic tissue and gangrene result.

The inflammation of the skin produced by cold resembles, in many respects, that produced by heat, only the course is slow. The first degree of the chilblain consists in an erythema, *Erythema pernio*, in circumscribed patches of a livid red color, which disappears under the pressure of the finger. When rubbed, it attains a vivid red color, and the part becomes swollen by the exudation into the meshes of the tissues.

The parts usually affected are the fingers, the toes, the nose, and the ears. The affection is accompanied with a burning and itching sensation, which is increased in a warm temperature. The course of this erythema is sometimes so slow as to continue in some people the whole Winter. Chlorotic and anæmic people are more liable to chilblains than healthy and strong individuals.

When the cold is more intense or the exposure greater, the erythema is increased in degree by an abundant exudation into the tissues, which produces watery or sanguinolent blebs (*Congelatio bullosa*). In such a case the papillary layer and the corium are deeply affected, and there is some necrosis of the connective tissue.

When the skin is decidedly frozen, an escharotic chilblain results. This is the extreme form, and may result fatally. It is quite frequent among soldiers in time of war, when undergoing great fatigue and cold without sufficient covering. To prevent chilblains the extremities must, first of all, be sufficiently and warmly covered. When they are very cold, the person affected must not run to the fire-place at once, because the sudden filling of the vessels which results from this sudden change of temperature, produces the erythema; and when the case is severe, gangrene may result. In these cases it is necessary to rub the frozen part at first with snow,

and afterward with cold water, so as to recall the circulation gradually, and thus prevent the exudation.

In mild cases of chilblains the application of a solution of lead, with a few drops of sulphuric or nitric acid, one to one hundred parts, is useful. When a few days have elapsed we can pass to the application of different ointments; for instance:

R. Camphor ras.
Balsam Peruv., āā3ij.
Unguent simpl., 3ij.

To be rubbed on the place twice a day.

R. Sacchar. Saturn.
Alum. crud., āāj3 to 3v.
Unguent emollient, 3j.
Cerae albæ, 3ij.

To be spread upon a piece of cloth and applied over the affected part.

R. Acid carbolie, ʒj.
Iod. pur.
Tannin, āāʒj.
Unguent cerat, 3j.
(Rothe).

R. Acid carbolie, ʒj.
Unguent emollient, 3j.
(Bulkley).

Both of these preparations are for local use.

When the chilblain has passed into the bullous or the escharotic condition, it is necessary to call in surgical help.

The air, on account of its high temperature, has also an influence on the skin, so as to disturb its functions and produce evil effects. We will not speak of the action of fire and of its result, burns. These are the result of the physical action of fire, and do not belong to the jurisdiction of the hygienist.

ERYTHEMA CALORICUM.

Warm air in contact with the skin is capable of producing hyperæmia, which is called *Erythema caloricum*. When an individual in the beginning of the Summer is exposed to

the rays of the sun he gets very often an erythema of the face, neck, hands, and arms. The skin is red, which redness disappears under the pressure of the finger, and is accompanied with a slight burning sensation. Sometimes this is limited to the degree of a simple hyperæmia, and after two or three days entirely disappears. At other times there is an exudation into the meshes of the tissues of the skin, and some swelling, with the production of vesicles or bullæ. The erythema in those cases is more severe, the burning sensation is increased, lasts longer, and upon disappearing causes a slight desquamation.

An erythema is sometimes caused by exposure to hot fires, as in the case of cooks and those engaged in domestic employments. When this erythema continues a long time it becomes very obstinate, and passes into eczema, which with difficulty yields to treatment, on account of the occupation of the individual. Its effects have sometimes been attributed to poisonous ivy, with the result of frightening the patient.

The treatment is very simple, and consists of the application of starch-powder three times daily, and the removal of the cause.

SUDAMINA—PRICKLY HEAT.

Heat stimulates the skin to an abundant secretion of sweat, which comes out in large drops upon the surface, and which is sometimes so profuse as to irritate the skin and cause an eruption of small red papules. Among the papules will be found little vesicles filled with a clear fluid, and having their seat in the excretory ducts of the sweat-glands. The same eruption can be produced by hot baths and pilocarpin. This prickly heat may sometimes, especially when the skin is not kept clean, result in *Eczema rubrum*, and cover the entire body.

The patient seeks advice because of the itching and burning sensations which accompany the eruption. The

treatment consists in avoiding hot baths, and using only cold water for bathing, and that not too frequently. Salves, grease, glycerine, etc., aggravate the trouble. It is best to rub the skin with alcohol, and afterwards to dust with starch powder, to which some oxide of zinc may be added. The garments next the skin must be very soft, preferably linen, which must be frequently changed, so as not to leave the garments saturated with sweat too long in contact with the skin. Flannel undergarments are to be entirely discarded.

CHAPTER XIV.

INFLUENCE OF WATER UPON THE HEALTH OF THE SKIN.

IN the brief anatomical sketch of the skin, it was shown how the minute cells of the cuticle are constantly cast off in the form of furfuraceous scales. These scales are not, in the normal condition of the skin, entirely thrown off from the surface, but remain adhering to it and mixed with the oily secretion of the sebaceous glands, the saline matters excreted with the perspiration, dust of all kinds, soot, particles from the clothing, etc. Within twenty-four hours the skin, especially in those parts which are covered, becomes vested by a pellicle of impurities, which, when allowed to remain, becomes thicker every day, and may produce injurious effects by obstructing the excretory openings, preventing transpiration, and influencing the respiratory function of the skin. The effects would consequently be felt not only in the skin itself, but in the whole organism. Some of these effects will now be treated of individually.

The accumulation of epidermic scales in the meati of the sebaceous glands and in the opening of the hair follicles causes a trouble of the skin, which was described by Willan under the name of *Lichen pilaris*. The term is not correct,

because this affection has nothing to do with the diseases called *Lichen*, and therefore Simon called it *Acne*, to which I would add the specific term of *pilaris*—*Acne pilaris*. It is nothing else than a hypertrophy of the epidermis, appearing in the form of conical, whitish, solid epidermic elevations about the apertures of the hair follicles. Each elevation is pierced by a hair, around which an accumulation of epidermic scales and of fatty matter takes place. Their color varies, being sometimes whitish, sometimes grayish. The skin appears dry, rough, scaly, and if the hand be passed over the surface, a pointed roughness, like a fine nutmeg-grater, will be felt. I have seen this affection many times in individuals who neglect the cleanliness of their skin. The opinion of the most distinguished dermatologists is, that the cause of *Acne pilaris* is the neglect of bathing. The impure layer of epidermis, oily secretion, dust, etc., above mentioned, by impeding the natural functions of the skin, cause the accumulation of the epidermic scales with the result named.

The skin, when not cleaned, will be irritated, both mechanically and chemically. It will be kept damp and cold from the attraction and detention of moisture by the saline particles, thus giving rise to many organic acids, which attack the epidermis, and cause disease. The axillary cavity, the internal surface of the thighs, the folds of the skin around the genital parts, the navel, and the skin beneath the mammæ are liable to produce more perspiration on account of the greater abundance of sebaceous and sudoriferous glands. The perspiration can not easily evaporate, and remains under the folds of the skin as a continuous moisture. The acid qualities of this perspiration is well known, for experience has shown that green cloth turns yellow and blue turns red under the armpit. Now, this perspiration, when allowed to remain for so long a time as to produce organic acids, can not be innocuous to the skin, and, of course, is a cause of irritation. The chemical action of the

perspiration, with the mechanical rubbing of the two opposed surfaces of the skin, produce maceration, excoriation, redness and swelling, accompanied with itching and burning sensations.

This is what we call an *Erythema intertrigo*, which comes on suddenly. Unless checked by the removal of the cause, it soon becomes intensely annoying to the patient, and from a simple erythema may pass into an eczema or a dermatitis. This trouble is easily removed when the part is washed every day with soap and water, dried with a soft towel, and covered with a dusting powder, as rice-powder, or some amylum, with oxide of zinc. But when the *Erythema intertrigo* is neglected, it passes on to eczema, and increases in degree from hyperæmia to exudation.

In the eczema we have all the symptoms of the catarrhal inflammation of the skin, with the formation of minute vesicles containing serous secretion; or the surface may be red, excoriated with profuse secretion, and accompanied by itching and burning sensations. The eczema in these anatomical regions usually runs a chronic course, and, on account of the persistence of the cause, does not yield readily to treatment. At other times the eczematous secretion becomes altered by being mixed with the organic acids which are produced by the alteration of the perspiration. This mixed and altered secretion, containing micro-organisms, may then be absorbed by the lymphatic vessels, and become the cause of a lymphangioitis and erysipelas, with all its consequences.

Another trouble of the skin, which arises from uncleanness, is the development of parasites. It is known that several kinds of parasites find a very favorable ground for their nutrition when left undisturbed in the accumulated dirt of the body. I shall not here speak of animal parasites, which, of course, develop themselves in the body of dirty people, and are the cause of that affection called *Phthyriasis*, but shall limit my remarks to the vegetable

parasites. The spores of some fungi which are in the atmosphere can very easily come in contact with the human skin, but by ablutions are washed off and have neither time nor favorable ground for their development. When, however, the skin is covered with a layer of impurities, and when it is continually moistened by the perspiration, the spores find a good soil for their vegetation. The fungus which more commonly develops itself on the skin in the said conditions is the *Trychophyton tonsurans*, which produces that disease of the skin called by F. Hebra *Eczema marginatum*, and by Baerensprung *Erythrasma*.

This is an eczematous process, which is disk-shaped, grows peripherically, heals up in the center, and leaves a pigmentation.

It begins as a red spot of the size of a lentil, accompanied with an itching sensation. It grows in its periphery, the center depressed, the edges red and elevated above the level of the skin, the internal concave portion showing a red, moistened surface, and the external convex part covered with small scales. The itching sensation accompanying this disease is very troublesome, and many excoriations, which are afterwards covered by brownish crusts, are produced by scratching.

Eczema marginatum occurs chiefly around the genital parts, in the axillæ, where the skin is easily macerated by the sweat, but the other parts of the skin are not excepted, as the hands, the face, etc. It may be the cause of sycosis in the face. The anatomical seat of *Eczema marginatum* is the epidermis, from which it may spread to the underlying tissues. *Eczema marginatum*, when confined to the epidermic surface, does not alter the hair. This disease is parasitic in origin, and is due to the mycelia and conidia of the *Trychophyton tonsurans*, according to Köbner and Pick. The spores of this parasite need for their development the epidermis macerated by the perspiration, circumstances which are found in fatty people, who perspire freely and are not

given to bathing. This affection has a chronic course, and is very obstinate. The best way of treatment is with inunctions of Wilkinson's ointment, whose formula for its preparation is the following:

R. Sulph. flor.,	} āā 3 iij.
Pic. liquid.,		
Sapon. viridis,		
Unguent simpl.,		3vj.
Terr. albæ,		3 ij.
Misce; ft. unguentum.		

This is applied to the affected skin twice a day with a brush or a piece of flannel, for six days. The skin becomes rough, covered with large scales, returning thus to the normal condition. During the treatment the patient must keep still, in order to avoid the fissures which may happen on account of the infiltration and inelasticity of the skin. Other remedies used for this affection are referred to elsewhere.

These are some of the local consequences arising from want of cleanliness of the skin; but there may be systemic consequences as well. The high absorptive faculty of the skin renders easy an absorption of foreign matters held in suspension by the perspiration, as poisonous gases, miasmata, etc. Experience has shown that people who are careless in the matter of personal cleanliness are more apt to have contagious and infectious diseases than are those who are more careful. If the skin be covered with a coat of dirt, its function of respiration is interfered with, and this must of necessity have an injurious effect upon the system, without taking into consideration the absorption of infectious or poisonous matters, as here referred to.

The above considerations show that ablution is a necessity, and water is the most grateful, the most necessary, and the most universal of the gifts of the Creator.

In the oldest periods of time we find that water was regarded as a representative of Deity, and was raised to the dignity of a god. Thus the rivers of Greece and Rome were

represented allegorically by a tutelar god with his attendant nymphs, and to this day the Ganges is adored by the votaries of Brahma.

The old Romans so highly appreciated this element that they made Rome exceedingly rich in its supply of water, so that Dionysius said that at the time of Augustus the abundance of the water was the greatest wonder of that city. A part of this water was used for drinking purposes and another part for baths, which were the most potent therapeutic measures then in use. Baths were dedicated to the divinities of Medicine, Strength, and Wisdom—Æsculapius, Hercules, Minerva, Hygeia; and the use of water as a religious observance was enforced. Afterwards it was adopted as one of the symbols of Christianity.

The Greeks, in accordance with their national love of pleasure and novelty, joined their public baths to the gymnasium, so that athletic sports should be succeeded by bathing, this again alternating with conversation. In Rome, too, within the vast precincts of their baths, were found temples, extensive libraries, and palestræ for sports, such as running, wrestling, boxing, etc. Architecture, sculpture, and painting exhausted their refinements on these establishments, which, from their extent, were compared to cities. The baths of Caracalla were ornamented with two hundred pillars, and furnished with sixteen hundred seats of marble, upon which three thousand persons could be seated at one time. Those of Diocletian surpassed all the others in size and sumptuousness of decoration, and were enriched with the precious collection of the Ulpian library.

In the time of the Republic the baths were cold. Mæcenæ was the first to erect warm and hot ones for public use. They were called *thermæ*, and were placed under the direction of the ediles, who regulated their temperature, and enforced cleanliness in the establishments and order and decorum among the visitors. The number of *thermæ* in imperial Rome were no less than eight hundred, and all classes

resorted to them. The emperors themselves—as Titus, Adrian, and Alexander Severus—were occasionally seen among the bathers. The price of admission was very small.

Warm and cold bathing is common at this time among all civilized nations, though by no means so general and easy of access as could be desired either for health or comfort. Bathing is now used by families in good position; but among the poorer classes of people, where it is most needed, bathing is neglected from lack of means, and this useful aid to health, strength, and vigor is lost. The ancients were far advanced in what concerns public hygiene, and we must use every endeavor to spread the use of baths.

Immersion in water, of whatever temperature, has its effect at first on the epidermis, removing the dried epidermic scales, thus leaving the skin smooth and soft. Every body coming out of a bath can have the proof. On rubbing the skin with a towel a quantity of scales comes off. Associated with this improvement of the condition of the skin, it is one of comfort and relief, with a feeling of well-being diffused throughout the general economy. This is connected with the impression produced on the extremities of the sensitive nerves expanded all over the skin.

Every organ has its appropriate stimulus, which, when applied, increases its sensibility by the larger quantity of blood flowing into it. Examples of stimuli are easily furnished, as light for the eye, air in motion for the ear, pure air for the lungs, food and drinks for the stomach. It is known, moreover, that if the appropriate stimulus be withheld from an organ for any length of time, it first becomes feeble, and finally loses its function. When an organ is deprived for some time of its normal stimulus, it is at first much more susceptible to impressions. The eye, for instance, after remaining for some time in a dark room, on going to the light experiences a disagreeable sensation. Therefore the degree of excitation of an organ depends not only on the susceptibility of the organ itself, but also on the applied

stimulus, according to its application, whether continued or intermittent. Thus the light of a lamp, which allows us to see with grateful readiness, causes the involuntary closing of the eyelids when brought before the eyes on just awaking from a sleep. The striking of a clock in a house startles a stranger who hears it for the first time, but it is scarcely observed by the residents. A person long fasting and a-hungred will be excited by a portion of food which does not produce any sensation in one whose meals have been taken regularly.

The above observations show that the means of strengthening a part is to exercise it regularly and often. Habit is a suitable education of the organs, as it enables us to give them a great degree of promptness and extent of function; but we must always be careful not to exceed due limits. When an organ is subjected to excessive action of stimuli, it no longer feels an agreeable and normal sensation, but some degree of uneasiness and pain is experienced; and this makes us aware that we have gone too far, and the part instead of gaining, has lost vigor, being thrown into a state of indirect debility.

The same principles we must apply to the skin, which we have considered as an organ of touch, transmitting to the brain the effect of the impression produced by the temperature of the air and of surrounding bodies with which it comes into contact. Every inert object coming into contact with another of different temperature absorbs or loses its caloric till both have the same temperature. But this is not the case with animal bodies, which generate warmth in their interior by the chemical action of life, and sustain themselves at a constantly equable temperature, independent of the medium in which they are placed. The animal body is, however, affected by the two conditions of high and low temperature to which it is exposed, by the sense of touch distinguishing between heat and cold.

The human body in its healthy state has the temperature

of about 98° Fahrenheit; which is not applicable to the whole surface of the skin, but only to the internal parts of the body. The skin finds itself generally in contact with the atmosphere at a lower degree of temperature, which only occasionally becomes higher, as when the body is immersed in hot water, or in the heated air of the intertropical regions. In general, the living body is surrounded by the air or is in contact with bodies of a heat less than its own; hence it is continuously obliged to supply with its own energies the expenditure of animal heat. Habit has a good deal to do with the feeling of heat and cold; hence in the beginning of cold weather, when the temperature is not very low, it seems very cold; but afterwards the cold of midwinter does not affect it at all. This can be easily demonstrated by a very simple experiment with the two hands. After having been immersed, the one in cold water and the other in hot water, if both are plunged into tepid water, it will seem warm to the former and cold to the latter.

Water has, on account of its density, a remarkable effect upon the body, as a superior conductor of caloric, producing on the animal economy much more distinct impressions. When we are exposed to air of 70° Fahrenheit, there will be an abstraction of heat, but to so small and gradual an extent, that no unpleasant sensation is experienced; but when immersed in water of 70° Fahrenheit, the abstraction of caloric is much more rapid and considerable, and the feeling of cold is produced. A difference of feeling is noticed in the different parts of the skin; as, for instance, the water which is at an agreeable temperature for the hands and the feet appears cold when applied to the abdomen or in the axillæ, where the temperature is higher. After some time, when the skin is in an equilibrium of temperature with that of the water, when some degree of caloric has been lost from the parts which are warmer and some acquired by the others which are even, the water seems agreeable and the sensation of coolness is not experienced. Therefore, taking

into consideration the conducting power of water and the differences of temperature in the different parts of the skin, which varies from 90° to 98° Fahrenheit, we are not surprised that a bath ranging between these two limits causes a feeling of warmth.

Animal heat is subjected to modifications in its evolution and absolute degree by the age of the individuals and the season of the year. Dr. W. F. Edwards has demonstrated by numerous experiments that the heat of the body is less in infants than in grown people. The medium heat in twenty adult persons was 97° Fahrenheit, in ten healthy infants was 95° Fahrenheit. The same author remarks that when small kittens, puppies, and rabbits were separated from their parents, their bodies, which at first had the same temperature as that of the latter, lost heat considerably. The same result he obtained in birds by removing them from their nests. To show that the feathers had not much to do in this heat phenomenon, he cut them off close to the body in an adult sparrow, and exposed it with some young ones partially feathered to air of the temperature of 64½° Fahrenheit. The grown bird preserved its heat of 101½° Fahrenheit, while the young ones lost theirs so rapidly as to be only two or three degrees above that of the air. This result shows that the faculty of producing heat in the body of warm-blooded animals, is at its minimum at the epoch of their birth and increases gradually to adult age.

As to the influence of the season on the production of animal heat, we know that, with the diminution of the atmospheric temperature, warm-blooded animals acquire an activity of respiration and evolve caloric in their bodies. This power increases in the Winter time and diminishes in Summer. The gradual and successive transition from Summer to Winter prepares our systems to resist the cold weather, but if accidentally in Summer a cold day comes on we feel its temperature as a disagreeable one, because the power of evolving caloric in our body is at its minimum.

These observations are made with reference to the gradual differences of temperature, which must not be confounded with the sudden application of cold. When the system is not prepared, a sudden and extreme cold exhausts the free caloric, and enfeebles the nervous energy. But the temporary application of a high degree of heat favors the subsequent evolution of the caloric in the body thus exposed. Hence the best means of supporting great cold is to be previously subjected to a high degree of heat. Proof of this statement is furnished in the practice of the people of Northern Europe, who rush out from their hot and close vapor-baths and roll themselves in snow or plunge into a cold stream.

The skin, from its extensive surface, abundant nervous ramifications, and its consequent intimate connection with the internal economy, especially with the lungs, kidneys, and alimentary canal, must have a very powerful influence upon the general condition of the body. When the skin is stimulated by heat, the excitation is felt by the whole nervous and circulatory systems. In sunstroke the heat stimulates the skin, and through it the nervous and vascular systems, to such a degree as to give rise to an excessive evolution of heat and the production of a state of insensibility to external irritation. When recovery fortunately takes place, the nervous and vascular systems from overstimulation fall into a state of debility and exhaustion, in which the evolution of caloric is diminished. This also means, as in the acute stage, insensibility to external irritation, followed by inability to withstand the slightest variations of external temperature. The prolonged Summer heat, by its stimulation of the skin, diminishes the functions which evolve calorification. The excessive perspiration causes coolness by its evaporation, and the evolution of the heat, being remarkably decreased, renders the system less able to stand the cold.

On the contrary, in the cold season the circulation and

the respiration acquire their maximum of activity, diminishing remarkably the activity of the skin. The expenditure of caloric by the colder external air is promptly repaired by the quantity of heat generated in the animal economy. But when the cold is sudden and excessive it enfeebles the nervous and vascular systems, and produces a kind of paralysis. The skin in this case, when exposed to an intense cold, shrinks and becomes pale; the mental faculties become dull and obscure; the respiration, at first increased, becomes irregular, and afterwards slower; the tongue is pale, a tendency to remain quiet comes on, and torpor and stupor ensue. If the body is left in this condition, with no more capacity of generating heat, it puts itself into equilibrium with the surrounding temperature, and becomes a frozen mass. Every Winter, in the middle and northern latitudes, some human being perishes from cold, whose morbid effects are accelerated by feebleness of constitution, long fasting, despair, and drunkenness. In the case of a forced retreat of an army in an enemy's country in Winter time, soldiers are often found frozen to death. In these cases of congelation the cold of the atmosphere acts both on the skin and on the mucous membrane of the lungs, and the first care should be to rub the skin with snow or cold water so as to bring back the circulation.

The skin possesses a different degree of sensitiveness in different individuals. In some persons the slightest mutations of temperature of the external air are the cause of disturbance in the nervous system. In them the first sun of Spring irritates and blisters, and the Autumnal coolness chills and renders them pale. Their functions are weak and the faculty of evolving heat very feeble. They are not able to withstand the cold, and require more clothing and artificial heat. In Summer, when their skin is protected from the rays of the sun, they feel perfectly comfortable. But a strong, athletic man, with large chest and active respiration, feels the heat to be unbearable, on account of

his active power of calorification. He bears with pleasure an expenditure of caloric from atmospheric coolness, or from a cold bath. The cold which to a robust and sanguine man is grateful and agreeable, to a weak and sensitive person is depressing, and causes uneasiness and sometimes disease. Therefore, in using water on the body, we must be guided by the constitution and the feeling of different persons.

The first and easiest way of applying water to the body is by means of a wet sponge or towel. Only a small extent of surface of the body is exposed, and one part after the other is gradually rubbed, thus giving time for the different parts to become used to the temperature of the water. This is very useful for invalids upon rising from bed. The water should be at an agreeable temperature. Invalids may begin with tepid water, and by degrees proceed to the use of cold water. The cold touch of the sponge, which at first is disagreeable, becomes pleasant; the quick friction which ensues is agreeable, stimulates the skin, gives action to the muscular system, and the warm glow, the thrill of health which follows, is positively of great advantage. When a larger ablution is required, it is necessary to use a large, shallow tub, or a sponge-bath. In that case the bather stands in the middle, and the water is squeezed from the sponge over the shoulders and against his body. This is a little more stimulating than the simple wet sponge; and when cold water is used, the reaction which ensues is much more active.

The immersion of the whole body in a bath-tub is the commonest way of bathing. Starting from this, we can divide the baths into cold, warm, and hot. We call a bath warm when the temperature of the water varies between 92° and 98° Fahr. It constitutes a tepid bath which some call pleasantly warm, others cool, according to their sensitiveness, but always agreeable at the first immersion. This bath has no hygienic operation or effect on healthy persons, and is good only for general purposes of ablution, without

parting any shock to the human body, which it receives from the cold bath.

As we intend to treat especially of the troubles of the skin, we must mention that, in these later years, the warm bath was used by the late Professor F. Hebra, of Vienna, as a therapeutic means, with satisfactory results. His patients used a continuous warm bath for weeks and for months without any disturbance of the health. For this purpose Hebra made a kind of water-bed, placed in a comfortable horizontal position, with the head so elevated as to prevent the continuous respiration of the vapor of the water. He had a kind of bedstead made, containing a large, quadrangular tub, in which a zinc wire frame or mattress was fixed. This frame could be immersed or taken out of the water by means of machinery. It was covered with a woollen blanket, upon which the patient could lie, and have his head as high as he desired. Through a system of tubes, the water was very easily removed and renewed, so as to be maintained at a constantly even temperature. The patients who suffered from extensive ulcerations, and were put into this bath, had a general sense of easiness come over them. After becoming accustomed to this bath, they could sleep just as well as in the dry bed. The appetite, the alvine evacuations, and the secretion of the urine were in their normal condition, nor was there any trouble ever remarked on account of the respiration.

During the first four or five days in which a patient lies in the continuous bath, no change on the skin takes place, except that the epidermis of the fingers and of the toes appears a little swollen. After eight or fourteen days, in the individuals with delicate skin a papulous eruption like an artificial eezema comes out, accompanied with an itching sensation. This eruption disappears very readily if the affected places be anointed with a little *Oleum Rusci*, and no necessity for quitting the bath arises.

Excepting these local troubles, which are due to the irri-

tation of the water on the skin, nothing unpleasant ever happened in the cases thus treated. In 1877 Hans Hebra gave a report of five hundred patients treated by means of the continuous bath, and, of course, there were many women among them. At the time of their menses they remained in the water without any disturbance whatever.

The diseases of the skin in which the continuous bath is useful are many and of different kinds. In extensive burns the continuous bath is the best remedy ever used. It quickly quiets the pain; the rubbing of the clothes is prevented by the presence of water, and the resulting ulcerations are covered and protected from the contact of the air. The water washes the pus off from the surface, and prevents pyæmia, which is the most dangerous consequence possible in these injuries. Under the old method of treating burned surfaces it is necessary to remove the cotton and clean the surface twice daily, thus producing dreadful pain.

Another disease which was very much relieved by the continuous bath is pemphigus. The patients, of course, did not all recover, but in the cases of Pemphigus foliaceus life was maintained for a long time. In cases of Pemphigus foliaceus where the continuous bath was not applied, death came very rapidly, and was accompanied by the most excruciating pain. When pemphigus attacks the whole body, and the whole cutaneous surface is a continuous sore, the bed-clothing and the linen apparel become saturated with the secreted fluids, which in some places become dry, in other places putrefy, and produce such an offensive odor that nobody can remain in the room. When the linen must be changed, it causes fearful pain, because it must be taken off with some violence. In these cases the continuous bath is of great service. It diminishes the contact of the wounds on the shoulders and on the back with the bed-clothing, and hence diminishes the pain; the products of the secretion are immediately removed by the water, preventing its putrefaction and the resulting stench, and the possibility of pyæmia.

Other experiments were made in the same way in cases of confluent small-pox, where the result was very satisfactory, on account of the maceration of the epidermis, and the removal of the pus from the cutaneous surface ; and thus far the best results in gangrenous bubo have been obtained by leaving the patient in the continuous warm bath.

HOT BATHS.

When the temperature of the water for the baths is beyond the degree of comfort, and the bather calls it very warm, some symptoms occur, which we must briefly describe. These are: acceleration of the pulse; augmented and preternatural heat of the skin, felt especially in the cheeks and temples; some fullness of the head, and slight confusion of thought. The immersion in a bath at the temperature above 98° Fahr. produces the phenomena already mentioned. It displays the stimulating effects of heat on the animal economy, and ought to be used with the greatest care, for so powerful a stimulus as high heat requires it. The limit of agreeable warmth is passed, and when immersed in water above 98° Fahr., we are in a hot bath. This is in contrast with the warm bath in regard to its physiological power, and must not be confounded with the pleasurable impression produced by the latter. The hot bath imparts to the system an excessive quantity of caloric, as water is much more dense than the air, exciting, therefore, the circulation in a more lively manner. In fact, the skin becomes red, the pulse is accelerated, the vessels appear turgid, and the respiration is more frequent, a copious sweat soon bathes the face, and the arteries of the neck beat more frequently. By continuing in the bath, the mind becomes obtuse and inattentive, vertigo begins, and may end with apoplexy. When a man remains a few minutes in a hot bath, he loses some of his natural weight. This fact was also known to Hippocrates, who said that a bath enfeebles every time that its heat exceeds that of the body immersed in it. A bath which is

excessively hot is intolerable to delicate subjects, being too much for their exquisite sensibility. In case of frozen limbs the application of a hot bath would be a great mistake, because it produces instantaneous distension of the capillaries, and consequently the mortification of the tissues. The body in a state of suspended animation must be recalled to life very gradually, and at first cold water and snow are to be rubbed over the frozen parts; then cool and afterwards tepid water; and if the skin recover its sensibility, and general debility prevails, warm baths may be used, but never hot ones.

The hot bath on the skin produces hyperæmia, redness, swelling, and an abundant perspiration, which causes the loss of weight of the body above mentioned. Small, inflammatory nodules appear on the surface of the skin, the result of the inflammation of the ducts of the sweat-glands. They are known under the name of *Sudamina*, *Psudracia thermalis*, or *poussée* of the French authors, and are identical with an artificial eczema. Sometimes this papulous eruption can reach the degree of small vesicles and cause a form of a vesiculous eczema, which in a delicate skin passes to the degree of Eczema rubrum. The increased quantity of blood flowing in the papillæ of the skin, produces an exudation under the epidermic layer, which causes papules and vesicles, and the papillæ become red and swollen. The prickling sensation which accompanies this eruption shows that the papillæ are involved in the inflammatory process. The vulgar idea that this eruption is a critical one, that the bad humors of the blood come out from the system by the action of the hot bath, persuades the patient to continue in the use of the hot bath, and in this way this kind of bath is the cause of an obstinate eczema.

VAPOR-BATH.

A much better substitute for the hot bath is the vapor-bath, which affects the animal economy by virtue mainly of heat, when it is of the dry kind, and of heat and mois-

ture when it is produced with boiling water. The vapor-bath can be also medicated, when the vapor contains in solution or suspension various medicinal substances. The application of vapor arising from hot water exerts nearly the same effect as a fomentation applied to the surface. The temperature of a simple vapor-bath, the product of warm or hot water, will vary from 90° to 150° Fahrenheit, according to the heat of the water, or the space through which it is allowed to be diffused, and the time which elapses since the first formation of the vapor. The heat of a Russian vapor-bath is commonly from 122° to 133° Fahrenheit.

Nature has prepared in many places vapor-baths, which are formed by hot mineral springs, as at Aix la Chapelle, Lucca, Island of Ischia, Hot Springs of Arkansas, etc. When the whole body, the head being free, is surrounded with vapor exceeding the animal temperature, the skin is highly stimulated, and as its temperature is lower than that of the vapor, so this is condensed into drops, which trickle down the skin. When the heat is diffused over the entire surface, the skin becomes red and covered with a profuse sweat. It seems that the blood-vessels of the skin, from their swollen condition, are able to absorb the vapor much better than the water. The pulse acquires volume with some additional frequency, and there is a tendency to sleep, followed by a general feeling of languor and indisposition to bodily exercise.

When the caloric is not great, the stimulating action of the heat will be mitigated by the influence of the moisture. The aqueous portion of vapor applied to the epidermis penetrates and softens it much better than simple immersion in warm water would do, and the nerves are pleasantly affected, as in the case of the warm bath, by the mild vapor applied to their extremities. In this bath, although the caloric of the vapor produces a greater afflux of blood to the capillary vessels of the skin, the resulting effect is more

of a soothing and sedative than of a stimulating or irritating character. The increased secretion from the skin in the form of sweat, when not excessive, is often salutary. The equilibrium between the tissues and the absorbent vessels is restored, accelerating their circle, and causing a renewal of the nutrition. After the using of a vapor-bath, the cuticle of the skin peels off, and the complexion is improved by the substitution of new pigment in the *Rete mucosum*. The capillary blood-vessels of the skin acquire more vitality and fullness from the afflux of the blood in consequence of the heat of the vapor, thus supplying a large secretion of sweat, while at the same time there is a large imbibition of moisture, and consequently increased size of the lymphatic and venous system, which gives a roundness to the skin, observed in those who have just left the bath.

Generally speaking, vapor-baths can be applied in those cases of skin diseases where the epidermis is rough and dry. In prurigo, a disease essentially chronic, where the skin is dry and resembles a nutmeg-grater, the vapor-bath softens the epidermis, renews its first layers, produces perspiration, calms its excitement, and diminishes the itching sensation which tortures the patient. In psoriasis, this bath softens the epidermis, removes the scales, and thus renders the psoriatic spots more sensitive to the action of remedies.

When the vapor-bath is used too often, the irritation of the skin by the excessive perspiration causes the same trouble as the hot-bath; the skin is covered with a papular eruption (*sudamina*), which produces eczema, and remains for a long time. The popular opinion that the *materia peccans* is driven away from the system by the vapor-bath, is the cause of a patient's keeping on in its use till the skin is covered with eczematous eruption. *Eczema marginatum* in individuals who are accustomed to take vapor-baths may occur, and, as already stated, the cause of this eruption is the maceration of the skin, thus allowing parasitic fungi to find a favorable ground for their development.

MEDICATED VAPOR-BATH.

I will not stop to treat of the dry vapor-bath or bath of heated air—the *sudatorium* or *laconicum* of the Romans, erroneously called the warm-bath of the Turks and Persians—but shall proceed to speak of the various medicated baths which are used in connection with troubles of the skin. It is to be regretted that the same words expressed by John Bell in his work, “Baths and Mineral Waters in Philadelphia,” I am obliged to apply, fifty years after, to so large and populous a city as Cincinnati, where bathing establishments are a real want, both in the city at large and in our hospitals. Natural sulphurous vapors are largely exhaled at different places in the vicinity of Naples, at the grottoes of San Germano. Hot sulphurous baths are found native in Castellamare, Casamicciola, and Ischia, where the water issues from the ground at a temperature of 122° Fahr.

The sulphur-bath may generally be used at a temperature of 100° Fahr., and is applicable in many skin diseases.

The plain vapor-bath is not so valuable in skin diseases as the medicated bath, because in the latter the epidermis is softened and washed off, and then the medicinal properties may come into direct contact with the diseased surface.

Prurigo, that chronic, obstinate, and almost incurable disease, which attacks by preference children, no matter what the state of their health or social condition may be, is much relieved by the sulphur-bath. This eruption begins in the form of subcutaneous nodules, upon the extremities, except on the inner surfaces of the joints—nodules which at first are more apparent to the touch than to sight. There is intense itching, and consequently scratching, which exoriates the skin and produces bleeding. This blood dries, and forms crusts. After the disease has continued a long time, increased pigmentation of the skin results; the skin becomes dry and furrowed, rough, and loses its hair. In some cases an eczema is developed in addition to the prurigo,

and is very obstinate, because of the persistence of the latter, and of the consequent scratching. In other cases the prurigo nodules become pustules, the pus escapes, dries, and covers the skin with dirty crusts—a form of the disease to which Willan gave the name of *Impetigo scabida*.

Sulphur-baths, either as vapor or common baths, are very valuable in the treatment of this disease. If eezema is also present, it must first be treated by salves, before using sulphur-baths, as they would irritate the skin and increase the trouble. The best way for preparing the sulphurous bath is to use a solution of sulphuret of lime, according to the formula of Vleminckx:

R. Calcis viv., pts. 250
 Flor. sulphur, pts. 500
 Coque cum aqua fontis 2,500 pts., in vase ferreo, terendo
 cum spatula lignea ad perfectionem.

The Vleminckx solution is an intense yellow fluid, smelling very strongly of the sulphur. It mixes very readily with water. Put from two to four ounces of this solution into a common bath-tub filled with water.

The same bath has a useful application in cases of psoriasis, and of ichthyosis. In the latter disease it can also be applied in a different way. With a brush we spread the Vleminckx solution on the diseased skin, and afterwards the patient is immediately put into the warm-water bath for two or three hours.

The sulphurous bath is also employed with satisfactory results in parasitic diseases of the skin, as in scabies, Eezema marginatum, and Herpes tonsurans. Before Professor F. Hebra made his accurate observations upon prurigo, it was frequently confounded with scabies, and cases of the latter disease were pronounced prurigo, treated with sulphur-baths, and recovered, and then the baths were given the credit of curing the prurigo.

An idea formerly prevailed, and is held to-day by some physicians, that if syphilis be latent in the system it will be

brought out by sulphur-baths, and further that if a syphilitic eruption be present, these baths should not be used for fear of making it worse.

According to the experience of Professor Zeissl, the sulphurous bath has no peculiar action on the syphilitic diathesis, but acts just the same as a simple warm bath. He subjected many syphilitic patients to the bath without seeing any change in the course of the syphilis. The initial chancre heals up when the patient is treated to a sulphur-bath just as it does when the patient is subjected to simple warm baths. The erythematous and the papulous syphilitic eruptions are not influenced in either course or degree by sulphur-baths. Psoriasis palmaris and plantaris, even in those obstinate cases which resist both mercury and iodine, are benefited by these baths. This is also true of syphilitic swelling of the glands, the pain in the joints and the hydrarthrosis occurring in syphilitic individuals, all of which are rapidly made to disappear by their use. These baths exaggerate rather than diminish the pain in syphilitic osteitis and periostitis, and have no effect in preventing a relapse of syphilis.

It seems to be the opinion that the use of the sulphurous vapor-bath, after the treatment of syphilis, more easily expels the mercury from the system. In cases of trembling from the prolonged use of mercury, the sulphurous bath gives satisfactory results. It is possible that the simple hot bath would have the same useful effect; but there is reason to believe that sulphur helps the action, because we know that physicians who attend men working in mirror factories are able to collect from the skin of these men globules of mercury by giving a sulphur-bath.

In the treatment of syphilis I recommend to my patients to desist from the cold bath, if they are in the habit of taking it, and to use warm baths, so as to keep up a more easy perspiration.

When the cold water treatment was introduced and rec-

ommended by Priessnitz as the universal remedy for every disease, syphilis was also treated by this method. The patient was wrapped up in bed with covers of raw wool, and waited for an abundant perspiration, which followed after one, two, or three hours. He drank a glass of cold water every half hour, and when he was covered with an abundant sweat, he was immediately plunged for some minutes into a bath at the temperature of 18° Réaumur. Afterwards he was taken out, dried, and quickly dressed, and sent to take a walk in the free air until the skin felt warm again. The temperature of the water was gradually diminished, till cold water from a well was employed. This method was applied twice a day, morning and evening, and in some cases also the douche was used. But the result of such treatment was not very satisfactory. Patients subjected to this treatment showed very slight roseolar or papular eruption, but had severe symptoms upon the part of the throat and larynx. The hair dropped out sooner and more abundantly than in other cases, and periostitis, which in other cases appears at a late period of syphilis, was prematurely developed and exceedingly painful. The Adenitis universalis was much greater, and the general appearance of the syphilitic patients subjected to this treatment was very bad, and threatened to grow worse. H. Nyman, attending physician for a long time in a bathing establishment where syphilis was treated with cold water, read in the Academy of Swedish Physicians a valuable paper, in which he strongly condemned cold applications in syphilis as injurious and dangerous. He refers to many cases where this treatment resulted fatally. The benefit of the treatment of syphilis with cold water is an illusory one; the roseolar and papular eruptions disappear from the skin, but the symptoms on the part of the internal organs continually grow worse, and thus the patient loses his time, when a rational treatment might save him from a miserable end.

Malmsten is of the same opinion as Nyman, and uses

severe words against the physicians in charge of such establishments. He infers that these physicians can only continue the use of the cold water for syphilitic patients, either because of a mistaken diagnosis, of ignorance of the consequence, or perhaps on account of something worse. In my practice I never advise syphilitic patients to use cold baths, but twice or three times a week to take a warm bath for cleansing purposes. After I am through with the mercurial treatment, if no symptoms of syphilis are apparent, and the swollen glands are reduced, I advise my patients to take a vapor-bath twice a week, in order to produce abundant sweating. The patients feel much better after this, and if the syphilis recurs it appears late and is very mild. I have no objection in such cases to the use of vapor or thermal sulphurous baths.

Now the question arises, Is the sea-bath useful in syphilis? When syphilis is in its full development, as in case of roseola of a papulous eruption, I would never advise a patient to take sea-baths. It is simply the question of the cold bath, and according to my experience a warm bath is more advisable in such conditions. When the symptoms of syphilis have disappeared after the mercurial treatment, the sea-bath may be useful to strengthen the patient, to improve his appetite and his general health. We have some cases where the thought of syphilis in a patient has made such an impression on his mind as to produce a continuous melancholy. These cases we call *Syphilophobia*, and then a trip to the sea-shore and sea-bathing are very useful. The air of the sea, the strengthening action of the sea-bath, the different life, and the different society he meets, cause a diversion of the patient's thoughts, and help him to shake this nightmare from his mind.

MERCURIAL BATHS.

Mercurial baths are used chiefly in the treatment of syphilis, and may consist of the dry bath, containing mercurial vapors, or of the bath in a common tub containing a

solution of corrosive sublimate. Mercurial vapors were used in medicine during the sixteenth century. The plan of treatment was as follows: The patient was put into a box containing burning charcoal, one drachm of cinnabar, and some aromatic roots; he remained therein from ten to fifteen minutes, and the bath was repeated every three



FIG. 1. THE DRY MERCURIAL BATH.

days. The mercurial vapors acted very powerfully through the skin and the lungs, but there were, unfortunately, a good many cases of asphyxia, and the treatment became dreaded, and finally fell into disuse. An effort was then made to prevent the asphyxia by cutting a hole in the top of the box, thus leaving the head free in the air; but mercurial

trembling of patient and attendants occurred, and again the use of these baths was discontinued and finally forgotten.

After the experiments of Dr. Lee in London, Professor Hebra repeated in the General Hospital of Vienna the same process with satisfactory results. The patient, completely naked, is seated upon a stool and covered with a large mantle of thick cotton cloth, tied about the neck and leaving the head free and exposed (Fig. 1). The apparatus for producing the vapor consists of a small, japanned tin box or vessel, with a movable lid hollowed out like a saucer and having a central pedestal or cup, and a small alcohol lamp

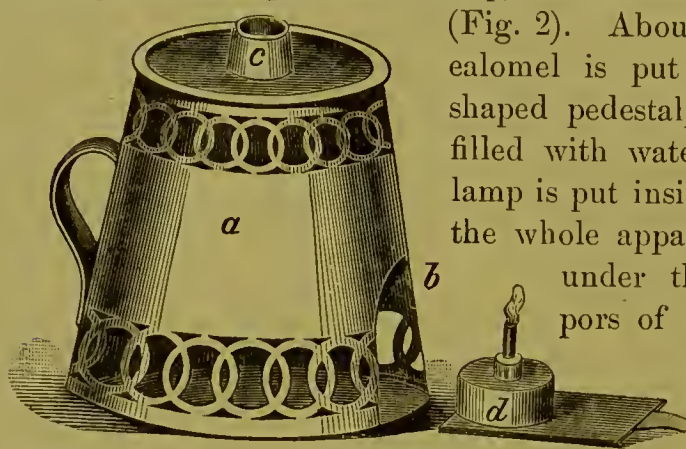


FIG. 2. ALCOHOL LAMP.

(Fig. 2). About one scruple of calomel is put into the cup-shaped pedestal, and the lid is filled with water; the lighted lamp is put inside the box, and the whole apparatus is placed under the stool. Vapors of sublimed mercury are given off and surround the patient. He re-

mains in this bath from fifteen to twenty minutes, when the skin will be covered with drops of water. After the bath the patient must be put to bed and the perspiration kept up. There are no unpleasant sensations connected with the bath, and it may be repeated every other day until twenty or thirty have been taken. In all cases in which this treatment was tried, relapses occurred, with salivation, which is a frequent and early consequence. Patients subject to hæmoptysis must never be treated by this method.

The mercurial bath was first used in 1760 by Dr. Baumé, who dissolved corrosive sublimate in a tub of water. One to three drachms of sublimate mixed with muriate of ammonia are to be dissolved in distilled water; and then

poured into a tub of water at a temperature of 92° to 98° Fahr. The patient remains in this bath for an hour or an hour and a half, with only the head exposed, thus being protected from the mercurial vapors.

The mercurial bath is not to be used in every case of syphilis, although it is decidedly beneficial in some. Syphilis ulcerosa in the tertiary period, when the ulcerations are very numerous, is greatly benefited by these baths, and I have seen cases of Syphilis tuberculo-ulcerosa, which resisted every other form of treatment, yield readily and completely to this means, as do also Psoriasis palmaris and plantaris, which are usually so persistent. In children with hereditary syphilis, Syphilis papulo-pustulosa, Pemphigus syphiliticus, or Syphilis bullosa, eruption of mucous plaques, etc., the best treatment is with the use of the mercurial bath. In these cases fifteen grains of sublimate dissolved in water in a small bath-tub are enough, repeating the bath every two days and stopping when the symptoms begin to subside. I have very seldom observed stomatitis result from the mercurial bath.

In one case of *Lepra Græcorum* with deep ulcerations in the limbs, Professor Hebra used mercurial baths, to the great relief of the patient.

APPLICATION OF THE COLD DOUCHE.

The best way of applying cold water to the body is undoubtedly the douche or spout-bath. This consists in a jet of water, which is fed from a tank by means of one or more tubes, over any part of the body. The shock is dependent on the temperature of the water and on the concussion and pressure of the stream. The douche is vertical, oblique, or ascending. The oblique douche, the jet of which forms an acute angle with the ground, is, however, the one most generally employed with cold water, and may be considered as the only one necessary for obtaining all the desired effects. When a jet of cold water suddenly strikes the skin, the

blood-vessels assume a tonic condition, and by their contraction the blood is driven away from the skin, flowing rapidly to the centre; but if we continue to strike the skin with the stream, the blood flows again in great abundance into the blood-vessels of the skin, which appears red, just as if it had been well rubbed. In the application of the cold stream we have two different actions upon the skin, one mechanical and the other dynamic. The mechanical action is produced by the concussion of the water against the skin, having the effect of a powerful massage; the dynamic action results from the coldness of the water on the nervous ramifications.

The application of the douche proves successful in many cases of skin diseases, especially in alterations of sensation, and in all those diseases which are comprehended under the group of neuroses of the skin. We find neuroses of the skin accompanied by eruption, a disturbance of its texture on account of the nerves controlling nutrition being affected. Skin diseases of this kind are distinguished as *angioneuroses*, where an irritation in the nerves causes a change of the circulation of the blood, and hence a disturbance in the nutrition. The affection is sometimes limited to one side; at other times it is spread to both sides, the disposition of the eruption representing the whole course of the underlying nervous ramifications, as we can see in many cases of zoster, and in many discolorations of the skin, *Nævus pigmentarius*.

In other nervous affections we do not see the disposition correspond to the nervous ramifications, although the eruption has a symmetric appearance; there the nerves of the blood-vessels are more interested, as in some exanthems and in some cases of erythema. In these cases, where the nerves can not control the tonus of the blood-vessels, either on account of a spasm diminishing their caliber or on account of paralysis, inflammatory symptoms arise in the regions of the skin, which are under the control of the affected nerves.

There are other affections of the skin in which the nutrition of its texture is certainly altered, but no inflammatory eruption is perceptible on its surface. These alterations are often found in the hair, in the nails, in the sweat-glands, and in the distribution of the pigment. The seat of the alteration shows clearly the distribution of the nervous plexus which regulates the nutrition of the affected region of the skin. Wyss described a case of vitiligo, or loss of pigment, corresponding exactly to the course of the second branch of the trigeminus. Schwimmer observed cases of vitiligo on both sides of the breast and abdomen, just like cases of zoster. In many of these cases neuralgic pains preceded the disappearance of the pigment; and in some cases, after the alteration of the pigment, it was found that the patients had progressive muscular atrophy; and in others, tumors of the brain.

The observations of Leloir gave an interesting proof of the above facts. He found in the white spots of vitiligo that the branches of the nerves had lost their axis cylinder; the myelin was reduced in altered drops, and the sheath of Schwann was sometimes empty, and at other times was filled with an altered mass; the consequence of which was that the Malpighian layer had no pigment cells.

In cases of profuse sweating we find alterations of the central nervous system. I will not speak of the sweat following an attack of malarial or typhoid fever, in which there is no doubt that the centra, especially the Medulla oblongata, are affected. But I may mention cases of local hyperidrosis which very often occur to the medical observer, as in prosopalgia, terminating with abundant sweat, or cases of hyperidrosis of the hands and of the feet, which are to be considered as disorders of the nervous system.

Other affections of the skin show no eruption on its surface, and no disorder in its nutrition, but the skin is affected just as an organ of touch. The sensibility of the skin is to some degree altered or perverted. These alterations

of its sensitiveness we consider as true idioneuroses of the skin. The susceptibility of touch can be exceedingly increased in different regions of the skin, so that any slight and normal stimulus produces disagreeable sensations, *Hyperæsthesia*; or, it can be diminished so as not to feel any stimulus, *Anæsthesia*. In many cases of hysteria we find hyperæsthesia and anæsthesia very frequently, which are connected with alterations of the nervous system. The sensibility of the skin is perverted sometimes in the form of pain, at other times in the form of itching sensations. Neuralgiæ of the skin occur as a burning or pricking sensation; in most of the cases limited to a branch of nervous ramification. In a paper read before the Academy of Medicine at Cincinnati, and printed in the *Lancet and Clinic* February 11, 1882, I referred to the case of a lady who presented a form of dermatalgia on the lumbofemoral region, with an exceedingly burning, painful sensation, which she felt in the night-time. In the same place she had zoster, and after the zoster had passed away dermatalgia remained.

The itching sensation, which is a peculiar physiological disturbance of the sense of touch, is sometimes a morbid symptom of the skin, when no apparent cause exists capable of producing it. The cutaneous *pruritus* is an unbearable itching sensation, without perceptible alteration on the surface of the skin. There is no doubt that this is a kind of neuralgia of the skin, where, very probably, the minute last ramifications are affected.

In many cases of these nervous alterations of the skin, the use of the cold douche is efficacious. In cases of hyperæsthesia of the skin, no other means has proved beneficial. F. Hebra, in his clinic, used the cold douche very satisfactorily in cases of *Pruritus cutaneus*, and I saw a case of furunculosis terminating in complete recovery through this agency.

The cold douche has not yet been sufficiently tried in skin diseases, the consequence of nervous alterations, either

trophoneurosis or idioneurosis; but in a few cases where I could apply it I had satisfactory results. This is an encouragement to make new experiments with it in many affections of the skin where the remedies so far used remain useless.

CHAPTER XV.

COSMETICS.

UNDER the name of cosmetics are comprehended all those substances or preparations which are used for beautifying the skin. Some of these substances are employed for the purpose of cleansing the skin and rendering it fresh and soft, others to hide the wrinkles which age produces, and others again for the purpose of giving to the face the apparent color and bloom of youth.

In the preceding chapter it was told how water removes impurities from the skin and from the clothing we wear next to it, dissolving the saline matters and holding in suspension those which are insoluble. Grease, however, is not removed by water alone, but must be dissolved by chemical action. For this purpose soaps are used. Soap renders the oily matter of the skin freely miscible with water, and acts as a valuable detergent in purifying the skin. It is the product obtained by treating any fatty substance with an alkali, such as soda, potassa, lime, etc.

The discovery of soap dates back to the earliest antiquity. We find the word *soap*, *sapo*, *σάπων*, used in the works of Pliny and Galen. Amongst the ruins of Pompeii was found a shop with all the utensils for saponification; and in the Museum of Naples are several well-preserved pieces of soap. Pliny gives the honor of the discovery of soap to the Gauls, who he says prepared it by mixing ashes with tallow. The

consumption of soap to-day is immense. The annual production in France alone is one hundred million kilograms, of which sixty million kilograms are manufactured in Marseilles.

In commeree we have two kinds of soap, which are called hard and soft. The first is produced by treating grease or oil with soda, and the other by using potassa instead of soda. Common hard soap is employed for domestic purposes; soft soap, on the other hand, is more applicable for cleansing woolen substances from grease and for whitening linen goods. Toilet or fancy soaps are usually prepared by melting common soap with different coloring matters, and flavoring it with aromatic powders or essential oils. They should, however, be prepared by using tallow, lard, butter, palm or cotton-seed oil, oil of sweet almonds, etc. Fancy soaps contain a good deal of water, which renders them whiter and lighter. The so-called soap of bitter almonds, which is in such a demand because of the belief that it contains the oil of bitter almonds, is nothing else than a good white soap flavored with nitrobenzin.

Rose soap, *savon à la rose*, is prepared in the following way: Take white-curd soap, made from best tallow, sixty pounds; olive-oil or Castile soap, forty pounds; vermilion in fine powder, three ounces. The vermilion is to be first well mixed with the soap, great care being taken to insure a perfect incorporation. When thoroughly mixed, the steam is to be turned off, and when the soap has cooled, a little of the following perfumes are to be added, in about the given proportions: Essential oil of rose, six ounces; oil of cinnamon and cloves, of each two ounces; oil of bergamot, five ounces. When the soap is prepared from the above formula it has a delicate rose color, is very fragrant and emollient, and is indeed one of the finest of toilet-soaps.

Orange-flower soap is made from white-curd soap, sixty pounds; palm-oil soap, forty pounds; color with yellow-green pigment, sixteen ounces; minium red lead, two and

one-half ounces; for perfume, use oil of Portugal, fifteen ounces; ambergris, fifteen ounces.

The *Windsor soap*, which is largely in use, as prepared in London, is generally made from tallow, nine parts, and olive-oil, one part, and is perfumed for every thousand pounds of the composition with oil of caraway, six pounds, and oils of lavender and rosemary, one and one-half pounds.

A great many qualities of soap are found in commerce. In some soaps different powders or substances are used, as in honey soap, oatmeal soap, and sawdust soap. Others are mixed with medicinal substances, such as the sulphur soap, which is prepared by first adding one-fourth of an ounce of sublimed sulphur to two ounces of white soap, and then adding two drachms of rectified spirit. This produces a smooth paste, and now a few drops of attar of roses are added to impart to the soap an agreeable fragrance.

Mercurial soap is made from powdered Castile soap, four ounces; corrosive sublimate, one drachm; rectified spirit, one fluid ounce; thoroughly mixing the paste.

Soft soap, green soap, is made from pure olive-oil, saponified with a caustic ley made from pure potash. The ley is added gradually and cautiously to the oil during the boiling, and the greatest care taken to avoid an excess of alkali. When the mass assumes a transparent and gelatinous appearance, the addition of ley is stopped. The boiling is continued until the soap has acquired the proper consistence.

Carbolic-acid soap is universally employed as a disinfectant and deodorizer, and its use has been very extensive. About two per cent of carbolic acid is added to soap in a melted state, and thoroughly incorporated by stirring it with an instrument like a rake. The following formula gives a fine soap:

Half palm-soap,	20 lbs.
Starch,	1 lb.
Carbolic acid in crystals,	1 oz.
Oil of lavender,	2 ozs.
Cloves,	1 oz.

Tar soap has also an extensive use. It is prepared as follows:

Cocoanut oil,	20 lbs.
Tallow,	10 lbs.
Juniper tar,	5 lbs.
Soda ley 40% B.,	15 lbs.

An elegant preparation, which is still in use, especially for medicinal purposes, is the liquid *glycerine soap*, which is thus made:

Oleic acid,	187 lbs.
Cocoanut oil,	33 lbs.
Potash ley 35% B.,	114 lbs.
Glycerine,	10 lbs.

The ingredients are saponified at a gentle heat, and sufficient alcohol, 95%, added to make the soap clear.

Various substances have been introduced into the manufacture of soaps for medicinal purposes. Thus we find in commerce, tannin soap, salicylic soap, thymoil soap, benzoic soap, petrolcum soap, paraffin soap, borax soap, camphor soap, etc.

The question naturally arises: "Which is the best soap for ordinary ablutions?" Medicated soaps should not be used except under the direction of the physician; and the ordinary toilet-soaps are not to be recommended, from the fact that they are prepared from all kinds of common soaps. The best soap is a good white-curd soap, without scent, or scented only by contact with fragrant substances.

The use of soap is certainly calculated to preserve the skin in health, to maintain its complexion, and to prevent the formation of wrinkles. When unpleasant sensations are experienced after its use, they may be immediately removed by rinsing the surface with water, slightly acidulated with lemon-juice.

Wash-powders are very poor substitutes for soaps, because they are rubbed on the skin with the hands, and act

in the same manner as do crumbs of bread upon a crayon drawing. Draughtsmen well know that these can not remove the chalk from the interstices of the paper, nor restore the original whiteness and purity of its surface; neither can wash-powders enter the innumerable apertures of the skin without obstructing them. They therefore irritate the skin without purifying it, and, obstructing the apertures of the sebaceous glands, may cause acncic eruptions. Soap, by chemical action, removes the grease and other impurities of the skin.

Soap is often said to be irritating to the skin, but this is an obvious mistake, for soap never irritates even the delicate skin of an infant. When soap does cause irritation, the fault lies in its improper use or in a state of susceptibility of the skin verging upon disease. The unpleasant effects of soap are frequently due to the temperature of the water used in ablution.

To a man whose duties call him to brave the cold of Winter in all its intensity, water at its lowest temperature is appropriate and refreshing. But to women or invalids such a degree of cold is injurious to the skin. The temperature of the water should be raised to a point at which it feels lukewarm, but no higher. Hot water for ablution is very bad for the complexion, and by exposing the face to a cold atmosphere or to a piercing wind after an ablution with warm water, the skin is irritated, roughened, and chapped, and the complexion suffers. All these effects are attributed afterwards to the soap.

MEDICATED SOAPS.

Sulphurous soap, which can be easily prepared by mixing together flowers of sulphur and pulverized soap, and adding a little alcohol, is useful in several skin diseases. But it should not be used except under the direction of a physician.

Scabies may be cured with one or two applications of this soap, and prurigo and psoriasis are benefited by its use.

It is of easy application, removes the scales, and improves the general condition of the skin.

It is a great mistake to use the sulphur soap in cases of eczema, as it increases the inflammation, and causes the disease to spread. Tar soap is not useful, and my experience leads me to advise an abandonment of its use. On the other hand, carbolic soap is useful, especially for physicians as a disinfectant after surgical and obstetrical operations, dissections, etc. This carbolic soap is also of great service to the skin when applied thereto after treating for psoriasis and eczema. Because of its parasiticide effect, it is also useful in the treatment of cases of Pityriasis versicolor and Herpes tonsurans maculosum of the body, since in these diseases the parasite is very superficial, and is easily attacked by the carbolic acid in the soap.

In those skin diseases in which it is necessary to dissolve the epidermis, the soft or green soap has its therapeutic advantages; for instance, in psoriasis, chronic eczema, especially chronic eczema of the palms in Herpes tonsurans and in ichthyosis, this soap can be applied for a greater or less length of time, until the epidermic scales are all dissolved. When this *débris* is washed off, the diseased surface can be directly treated by the proper medication.

In conclusion, soap is a hygienic and therapeutic means for cleansing the skin, preserving its beauty, and for the treatment of several of its diseases.

TRUE COSMETICS.

What has been said in favor of soaps can not be said for all those expedients invented to produce an artificial beauty of the complexion. I am decidedly opposed to those so-called cosmetics which can only injure the condition of the skin. A healthy person has a good complexion; therefore a healthy woman does not need any thing to improve it; and when a person is young, fresh, and handsome, paint is ridiculous and spoils the fairest gifts of nature. The time

has gone by when it was a matter of Church discipline if a woman painted or powdered her face, nor do I wish to write an article upon moral character; but I do want to make an appeal to the good sense of every woman against the use of such articles. Plenty of exercise in the fresh air will produce good blood, good nutrition, and a beautiful complexion. What kind of a complexion can that woman have who gets up in the morning, takes a cup of coffee and a piece of meat which can not be distinguished from leather, and sits the whole day near the stove, rarely going out for fear of taking cold? She must, of necessity, be pale, chlorotic, and will often have an acne of the face; but when a young woman eats well and according to the principles of hygiene, takes exercise, and breathes fresh air, she will have vigorous health and a florid complexion.

In spite, however, of this opposition to cosmetics, it is necessary to say a few words about them, because they are continually used in the theater and public assemblies by those who desire to hide their age and ugly complexion.

The arts of the toilet are as old as Thebes. The painted eye, the burning cheek, and dyed nails are coeval with the wisdom of Alexandria. We know that Roman ladies used the fine dust of calcined shells and the juices of some plants to restore the freshness of their color. In Southern countries there is a greater proclivity for painting the face than in the Northern.

Paints on the face assist in hiding the defects of nature; but they do not embellish the skin, and very frequently contribute to increase its defects. They can not give to the skin the desired qualities; they only imitate it to a greater or less extent. They can not repair the ravages of time, but they can increase them. Theatrical people, who are obliged to use paint, very frequently have more wrinkles early in life than old people who follow other occupations.

White paints are usually composed of lead, tin, or bismuth. The *Blanc d'Argent*, or Silver White, is a prepara-

tion of carbonate of lead; the *Blanc fard*, *Blanc de Perle*, is an oxide or subnitrate of bismuth, and is very injurious to the skin. The red paints are bad when they are composed of red lead, minium, mercury, cinnabar, or vermilion, but not so injurious when composed of vegetable matters, as alkanet roots, and of carmine or cochineal.

Numerous cases of eczema and pityriasis of the face have resulted from the use of paints.

There is another class of cosmetics not used for simulating beauty or hiding wrinkles, but ostensibly to maintain the freshness of the skin and to prevent premature wrinkles. They are in the form of salves, vinegars, and mucilages.

Salves or ointments are frequently recommended to be used, especially in Winter, when the skin of the face and hands becomes dry, scaly, or chapped.

The following formula for such a salve can be recommended:

R.	White wax.	
	Spermæceti,	āā 3j.
	Oil of sweet almonds,	3ij.
	Rose-water,	3iss.

Mix the wax and spermæceti together with the oil of almonds in a glazed earthen pipkin, in a vapor-bath; pour the solution into a marble mortar, and stir it with a wooden pestle till it becomes cool and seems quite smooth; then gradually mix in the rose-water, or orange-water if preferred, and keep stirring till the whole is incorporated. Add some essence.

This is a kind of cold cream which is very refreshing for the skin, and can be put on in very small quantities, and afterward a little rice-powder is dusted over, wiping off the surplus.

For the lips, as recommended before, a salve may be made, composed of oil of sweet almonds and fresh mutton suet in equal parts, with some bruised alkanet roots. This protects the lips, and gives them a fine color.

Every preparation of vinegar, as the *vinaigre de toilette*, which is nothing else than vinegar and mucilage, flavored

with some kind of perfume, and which is claimed to be refreshing to the skin, is really pernicious. Simple water is the best refreshing ablution, and does not need to be perfumed or mixed with vinegar.

Virgin milk, which is a milky mixture composed of tincture of benzoin and rose-water, is frequently used, and is good for the skin, but it is very often adulterated with vinegar of lead, and is then injurious.

We repeat what we have expressed above—a little salve to protect the skin and to correct its dryness can be used, but no painting. The woman who has once begun painting and coloring must go on painting and coloring. The complexion rarely regains its bloom and its smoothness, and it will always show the ravages resulting from this bad habit.

The perfumery-store is also richly supplied with different ointments, pastes, and lotions, from different manufacturers and countries, to be used for the purpose of removing freckles from the face and hands. The base of all these preparations is sublimate, and when they are used without due attention they are liable to injure the complexion.

Before speaking of removing freckles we must see what they are. The freckle, or *lentigo*, is found in the form of yellowish or brownish pigmentary spots, from the size of a pin-head to that of a pea, in the face and on the back of the hands. Sometimes they are discrete in a certain number, sometimes confluent, and are encountered at all ages, but usually in young people, especially in those of light complexion, and more particularly in red-haired persons. The freckles in most of the cases are more perceptible in Summer than in Winter. The cause has been attributed to the influence of the sun and of the air on the skin; but this can not be maintained, as we find freckles also on the parts of the skin which are usually covered.

They consist of a circumscribed deposit of pigment, and at present we do not know much about their origin. They are commonly attributed to a *lusus nature*, just like the spots

of a different color in the furs of the animals. In a well nourished person the skin is clear and glossy, and in one badly nourished, is brown and dry; hence Henle concluded that the anomalous pigmentations are due to the corrugation of the tissues, bringing the molecules of the pigment close together. As the pigment is seated in the deep layers of the epidermis, it is necessary in removing freckles to use substances capable of producing desquamation. The choice of the remedies for this purpose is a very important one, because we know from experience that many substances remove the epidermis, but the new epidermis comes back with more abundant pigment. After the use of *Emplastrum cantharidatum*, mezereon, sulphuric acid, or croton-oil, the new epidermis becomes brown, with a strong pigmentation; on the contrary, after using acetic acid, alkaline caustics, or sublimate, the new epidermis is clearer than before. Therefore, when we wish to destroy the pigment, we must select the latter remedies.

Repeated applications of spirit of green soap (*Spiritus saponatus kalinus*) produces a mortification of the epidermis, which falls in scales, and the pigmentation is notably diminished. The same result we can obtain with repeated applications of tincture of iodine, which in three or four days produces desquamation, and the new epidermis is not so pigmented.

For a long time a kind of lotion has been used by the Oriental ladies for removing freckles, which we know as *Aqua cosmetica Orientalis*. The formula for its preparation is the following:

R.	Mercur. sublimat. corrosiv.,	pts.	35
	Aq. destillat.,	"	7.600
	Album. ovar., No. 24.		
	Succ. citr. e. fruct., No. 8.		
	Sacchar. albi,	"	280

The mixture can be scented with different aromatic waters from five to one hundred and ten parts.

This is applied twice a day, and, on account of the sublimate, is capable of producing desquamation, and, in con-

sequence, the freckles are greatly diminished. We may also use :

R.	Borac. Venet.,	pts. 5
	Kali chloric.,	" 1
	Spirit. resedæ,	" 2
	Aq. rosarum.	
	Aq. naphæ,	āā 20

Misce.

R.	Zinc. sulfo-carbolic,	pts. 2
✱	Glycerin,	" 20
	Aq. rosar.,	" 30
	Aq. Coloniensis,	5

Both formulæ are useful for removing freckles.

In the case of large freckles, we can act more severely on the skin, so as to remove them more quickly. A solution of sublimate in the proportions of five grains to one ounce of distilled water is used. The skin must be first rubbed with spirit of soap, and then washed carefully with water. A piece of cloth in the form of a compress, dipped in the solution of sublimate, is applied on the pigmented spot, taking care that it makes no folds and remains thoroughly in contact with the place. The cloth is kept continuously moist with the solution by means of a little sponge. Great care must be given not to spread the solution on the surrounding skin. The compress, after four hours, is removed, and the place looks red, and is sometimes covered with a blister. The blister is opened and the contents taken away, leaving the epidermis on the surface.

Starch-powder is enough to protect the irritated skin from the contact of the air. The epidermis forms a kind of dark crust, which, when removed, leaves a new epidermis, clear and free from pigment.

Recently the following ointments have been recommended :

R.	Hydrarg. pur.,	gr. c
	Unguent. Hydrarg.	
	Sevi benzoinat.,	āā gr. c
	Adipis benzoinat.,	ʒiv
Misce.	Spread upon muslin, and bind on patches at night.	

During the day the following paste must be spread thinly on the affected parts :

R.	Bismuth. oxycholart.,	} āā gr. i
	Amyli orizæ,		
	Kaolin,		
	Unguent glycerin.,		3iv
Misc.			

CHAPTER XVI.

INFLUENCE OF CLOTHING IN THE PRODUCTION OF SKIN DISEASES.

IT is not my intention in this chapter to treat of fashions in dress, but simply to consider the properties of the different materials used in making clothing, in reference to their good or their bad effects upon the skin.

Clothing is used to prevent dispersion of animal heat, and to protect the body against variations of external temperature, just as is the case with the natural coverings of animals. In the downy covering of the eider-duck and the sea-bird, in the furs of animals, and in the meshes of man's clothing is retained a stratum of air, which is kept constantly warm by contact with the body, and which serves as a good protection. On the decrease of external temperature we increase the number of the layers by which the person is enveloped. It is well known that a loose dress is much warmer than one which fits closely; every body who drives, practically knows that a loose glove is warmer than a tight one; so a loose boot or shoe affords greater warmth than one which is too tight.

The materials employed in the manufacture of clothes are all bad conductors of heat, and therefore may be speedily warmed and preserve their temperature. They are taken

from the organic world; some from the vegetable, as cotton and linen; and some from the animal kingdom, as silk, wool, feathers, etc. The garments which come in contact with the skin are generally made from linen, cotton, silk, and wool.

Linen is obtained from a plant of the family of the *Linaceæ* (flax, *linum*). It is a small plant, which usually grows to the height of one yard; but on the shores of the Nile it grows to three yards. In America it is cultivated in most of the Northern States, and west of the Mississippi. It grows best in cold climates, and acquires the properties which make the most desirable fabrics, as the linen from Great Britain, Flanders, and Belgium. In its stems it contains ligneous fibres, which are employed in manufacturing draperies. The fibres of the linen textures are remarkable for their roundness and pliability, which give to the tissues smoothness and softness. The linen textures are applied as a soft and agreeable covering next to the skin. In temperate climates linen is a general favorite; but it has its objections. It is a good conductor and a bad radiator of the heat, and therefore not adapted for warm clothing, which should be a bad conductor and a good radiator. This property gives to it that coolness which we feel in touching a linen tissue, and when applied on the skin produces a sensation of cold. The fibres of linen are very porous, and therefore attract moisture. When worn next to the skin it quickly absorbs the perspiration, thus displacing the air from its meshes, so that, in place of an atmosphere of dry air, it becomes the means of maintaining a layer of moisture about the body. This moisture being a better conductor of heat, removes it rapidly from the body, and causes a chilly sensation. These circumstances have caused the entire abandonment of linen as a covering next the skin in hot climates, and in temperate climates cotton or flannel is now more commonly used.

Linen is used in the treatment of eczema on account of

the roundness and smoothness of its fibres, which do not irritate the surfaces deprived of their cuticle by the eczematous eruption.

Cotton is a warmer covering than linen, and to-day is the most extensively used. It is obtained from different species of *Gossypium*, belonging to the family of *Malvaceæ*. It is a stalky plant, and grows to the height of from three to four yards, according to the variety. Its culture requires a good deal of care, and the ground chosen must be dry and sandy.

Cotton fabrics worn next to the skin maintain the warmth of the body better than linen, being a better radiator and a worse conductor of heat. Cotton absorbs moisture, but not to the same extent as linen; consequently it does not destroy its own radiating powers by substituting water, which is a good conductor, for dry air, which is a bad conductor.

In the present excellence of manufacture, cotton fabrics offer the advantages of softness and pliability; hence cotton is with good reason the favorite and proper body apparel of hot climates. The fibres of cotton are flat, with sharp edges, which, in a delicate skin, excite irritation; therefore, thick cotton underclothing is not advisable for an excitable skin.

Silk is that fine and solid thread with which the *Lercaria mori* or *Bombyx mori*, in the larval state, constructs its cocoon. Silk textures occupy the third place above linen as a bad conductor and a good radiator of heat, and come next to cotton as a means of retaining warmth. Silk fibres, like those of linen, are round, softer, and smaller, and when woven into a tissue have less disposition to absorb moisture than cotton. Therefore, so far as roundness of fibre, softness of texture, absence of attraction for moisture, and power of communicating warmth are concerned, silk is greatly superior to both linen and cotton; moreover, it gives the sensation of freshness to the touch which is so agreeable in linen. But, with all these advantages, silk has its defects

when applied immediately to the skin; for the slightest friction disturbs the electrical equilibrium of the skin, and thus it becomes a source of irritation.

Silk can, therefore, be used for light underwear in Summer, as having the freshness of linen; and not absorbing the moisture, it does not produce that chilly sensation caused by linen. On account of the roundness and softness of its fibres, it is not so irritative to the skin as cotton. Heavy silk undergarments in Winter are not advisable for the above-mentioned inconvenience.

Wool is the soft, thick, and crisp hair which grows on the skin of sheep and of other animals. It is, therefore, similar to human hair in its formation and the structure of its fibres. In the beginning of Winter, when one first puts on a new flannel garment next to the skin, the irritation is very severe, and the itching is so great that many people can not wear wool at all. But when one gets used to the flannel, the irritation is no longer felt, and flannel becomes a very good material for retaining the warmth.

In warm weather, especially for working people, the wearing of wool next the skin is preferable, since it preserves the warmth of the body, and prevents the inconvenience resulting from the evaporation of the perspiration. In places where malarial fevers exist, it is advisable to wear flannel undergarments, which prevent a sudden cooling of the body by maintaining the heat. Wool is the worst conductor and the best radiator of heat, and on this account it is a valuable agent to preserve the bodily heat during cold weather. But also in Summer, in temperate climates, where the temperature at night is much lower than in daytime, light flannel underwear is very useful, especially for working people.

Wool, on account of its fibres, produces an irritation upon delicate skin. *Pruritus hyemalis*, described by Duhring as an affection of the skin, is probably nothing more than the result of the irritation of flannel on the skin. The places

especially affected are the thighs, the knees, the calves, and ankles; in short, wherever the flannel more tightly adheres to the body. Sometimes on the affected parts excoriations occur from scratching, and become the starting-point of an eczematous eruption.

The color has a remarkable influence in preserving warmth. The dark colors absorb more light, and more of the sun's rays, than those of a brighter kind, and have, therefore, a greater power of absorbing heat. A good absorber is also a good radiator; dark colors are, therefore, good radiators of heat, and, according to the nature of their material, bad or good conductors.

White reflects the rays of light, and with them the heat, being, therefore, a bad absorber and a bad radiator of heat. The experiment of Franklin is known; he covered the snow with cloths of different colors, and noticed that the snow covered with a black piece of goods was more rapidly melted, while that beneath the white cloth was thawed but little. Stark enveloped the bulbs of thermometers in cloths of different colors, and then put them into boiling water. He found that the thermometer which was enveloped in black reached the boiling point first, green second, red third, and white last.

The color of cloths is frequently the cause of irritation of the skin, producing a kind of inflammatory eruption, which is called *Dermatitis venenata*. This is brought about by the use of poisonous coloring matter in the clothing. Stockings or underclothing dyed with aniline red, yellow or brown morocco hat-bands and shoe linings, and green tulle dresses are among the kinds of clothing which may give rise to a dermatitis. In several cases of eczema of the ankle in ladies, the cause was found in the stockings, which had been colored with aniline dye. Removal of the colored stockings caused the eruption to disappear.

Another indispensable quality in clothing is porosity, which permits free transpiration from the skin. This is

necessary to comfort and even to life, because the skin is an important agent in respiration, taking up oxygen and giving off carbonic acid gas; and in secretion, for by it are eliminated from the blood many substances which, if retained, would become injurious to the system.

Clothing for health should not compress any part of the body. Garters for holding up stockings should be entirely abandoned, or, at least, relegated to the highest order of English knighthood. Many cases of obstinate eczema have their origin in the compression of the veins by garters, the compression producing a drawing back of the blood, with stasis and consequent infiltration. The effects of this compression is also sometimes shown in a roseola, a hæmoglobinorrhœa, and even in true Purpura hemorrhagica. The walls of the small veins are unable to withstand the over-distension from the stasis, become dilated, and thus form varicosities, which are the most frequent cause of eczema, *Eczema varicosum*. The result of stasis is transudation of serum and infiltration into the surrounding tissues, and this very often produces a cutaneous ulceration, *Ulcera varicosa*. These are frequently quite extensive, and generally very difficult to cure.

People whose work compels them to stand a great deal have a sluggish and weak circulation in the lower extremities. If to this tendency the constriction of garters is added, varicose veins, with all their attendant evils, are almost a necessary consequence. Garters, therefore, should be abandoned, and stockings held by supporters either from the waist or undergarments, so as to avoid any compression to interfere with the circulation of the lower extremities.

The clothing must be always kept dry, especially that which is used next the skin. Many times the linen or cotton under-garments are put away in a drawer or a closet, soon after having been ironed, still saturated with moisture. This is very often the cause of herpes or Tinea tonsurans on the body.

Moisture and warm temperature are favorable elements for the development of a mold, which is made up of a vegetable parasite, *Mucor mucedo*. This species of fungi is distinguished from other species by its simple organization and by its property of assimilation. These fungi result from mycelia, articulated cells in the form of threads, and from the fructification organs called conydia, and spores. What is remarkable is the change of one form of fungus to another according to the different medium in which it vegetates. For instance, when sugar is its medium, it has an entirely different form from that when salt is its germinal ground. When linen or cotton garments are put in a drawer not quite dry, the moisture in them, with the moderate temperature of the room, develops mold. From wearing apparel which has this parasite, and is put next to the skin, *Herpes tonsurans* may result. This is a disease which may occur on any part of the body, and is caused by the burrowing into and proliferation in the epidermis of the spores and mycelia of *Trichophyton tonsurans*. It is contagious, and is characterized by red, circular, squamous patches, accompanied with an itching sensation. It begins usually as small, reddish, scaly spots, which spread peripherically by the formation of vesicles, the centre gradually healing, so that in a patch which had existed, there sometimes comes a circle of vesicles with reddened base and covered with small, light scales, the centre of the circle being healthy.

We find a reasonable cause of the production of this parasitary affection in the change of the *Mucor mucedo* into *Trichophyton tonsurans*, because of the different ground of vegetation, as we have cases of this disease in families where the idea of contagion is totally excluded.

Therefore it is necessary, before putting newly washed garments into closets or drawers, to leave them exposed to the air for a few hours till they are completely dry. It may be well also to scatter among them some grains of gum-camphor, which has a disinfecting property.

Cleanliness of the clothing is important for the health of the skin and for the general system. Clothing is very often the occasion of spreading contagious diseases; hence old clothes must always be regarded with suspicion. It is known that a trunk full of old clothes sent to Venice was the origin of an epidemic of small-pox in that city. I have seen several young people affected with scabies from using boxing-gloves which had been worn by persons having that disease. Bed-clothing may be the source of contagion, and too much caution can not be exercised in having clean sheets, etc., in hotels and lodging-houses. For people who work in factories where poisonous substances are used it is essential that the clothing next the skin be frequently changed, and that those garments which are used during working hours should be changed for others when the work is done, for the reason that cloth absorbs poisonous particles, as of arsenic, lead, etc., and by contact they may be absorbed into the skin.

Garments which come in contact with the skin must be washed often, so as to remove fatty and saline matters, which are expired from the skin. Soiled garments are the cause of irritation of the skin. Eczema and Erythema intertrigo are frequently caused by the neglect of cleanliness in the clothing. Moreover, parasites find a favorable breeding-ground in dirty clothes, and thus produce skin eruptions.

In finishing this section, we will say a few words on the dress of the feet, which usually is left entirely to the caprice of fashion, so spoiling the normal shape of the foot. The human foot has never received as much consideration as other parts of the body; but when the foot is not comfortable, walking is painful, the movements are not so easy, and many evils result. When the toes are distorted and crowded upon each other, a rubbing of the skin against the leather follows, which often causes blisters and soreness.

When the nails are pressed into the skin upon one side more than upon the other, they grow into the flesh and

produce that annoying affection, an ingrowing toe-nail. The nail acts in this case just like a foreign body, and causes inflammation, which sometimes spreads to the whole toe, suppuration follows, and then ulceration, with the falling out of the nail, and the leaving of a fungous growth, which is exceedingly tender and painful.

The continuous pressure of the shoes upon the feet is the cause of corns (*Callositas tyloma*) in the places where the skin is chafed and rubbed against the leather of the boot, or from the friction resulting from the crowding of the toes against each other. The cuticle thickens and hardens to protect itself, in the same way that it does upon the hands or other parts of the body exposed to rough contact. As the irritation is continued, the skin continues growing harder and thicker, until the corn is produced.

Some corns are upon the surface as hard, yellowish masses of thickened epidermis, with a point projecting into the papillary layer. This peculiar shape, which resembles a nail, was called *clavus*, because of that resemblance. These are usually small, flat, circumscribed, horny formations, deep-seated, and painful upon pressure. Their seat is on the little toe and on the tops of the toes. When the corn occurs between the toes, it is white and soft on account of having been macerated by the sweat. They result from an excessive development of the epidermis and of a central core, which is in the form of an inverted cone, with its apex resting on the papillary layer of the corium. The pain is produced by the core pressing upon the sensitive papillary layer, which, in some cases, becomes inflamed, and suppuration and abscesses may result. On account of the exudation, the core is detached from its place with the other epidermis, and leaves a sore, which heals up through a flat scar. This we can consider a spontaneous removal of the trouble.

Persons who have been confined by sickness for a considerable time have had their corns entirely leave them without any treatment at all, simply because there was no

pressure to keep up the irritation. Not only tight shoes, but also too large ones, by slipping up and down at every step, are effective in the production of such annoyances. Hard and stiff leather is another efficient thing in this way. Well-fitting shoes are the treatment for corns; but in many cases it is necessary to interfere so as to diminish the pain. The corn must be removed, and it is better to do that when it is softened by means of a poultice, or by the application of patent lint soaked in a solution of sodium carbonate. With a sharp knife the macerated epidermis is scraped off and the central core is picked out, taking care not to wound the sensitive tissues. When this has been done, the place should be protected with a plaster. *Emplastrum fuscum* is applied with good result, and the formula is the following:

R. Plumbi oxidi rubri,	3iv.
Olei olivarum,	f. 3j.
Ceræ flavæ,	3ij.
Pulv. camphor,	gr. x.

Misce. Boil the lead oxide and the oil together until a brownish-black mass is formed; then add the other ingredients while still hot.

Unguentum diachylon may also be used with satisfaction. These are spread over a piece of cloth, and applied on the surface. Corn-plasters of felt in ring shape, commonly found in the drug-stores, are also useful in preventing the pressure on the corn.

The foot, frequently affected with hyperidrosis, offers other troubles. In this condition the sweat is very abundant and of a very bad odor, and macerates the epidermis. This macerated epidermis cracks near the joints and produces fissures, which are so painful as to prevent the individual's walking.

In these cases the proper hygiene of the skin may do a great deal of good, and prevent an increase of the trouble. The stockings should be changed very often, and light shoes worn. A little powdered tannin put into the stockings is useful.

CHAPTER XVII.

THE HAIR.

THERE is nothing which enhances youthful beauty so much as a fine head of hair, a subject which has been the theme of poets in all ages and all lands. Beautiful hair has always been considered the chief ornament of the head. Guido and Raphael have painted it in all its glories. There is not a voluptuous or luxurious scene in poetry or romance in which a description of the hair is not introduced. Homer, in mentioning the celebrated fair one who set all Asia in arms, always calls her the beautiful-haired Helen. Circe is described with hair falling over her shoulders in rays resembling those of the sun. Without this ornament, the goddess of beauty, though possessed of the brightest eyes and the most fascinating charms, would appear hideous and deformed.

The hair of woman is no less subject to the caprice of fashion than dress itself, as regards the color and the way of wearing it. The Gauls had a predilection for red hair. In some districts of Africa light-colored hair is preferred, which is detested in China. The Turks are fond of women with red hair, and so are the inhabitants of Tripoli. In all ages cutting off the hair was a sign of grief. In every country the women who devoted themselves to a life of austerity and penitence, began their sacrifices with that of their hair. The Greeks and the Choctaws punished an adulteress by cutting off her hair, which was not suffered to grow again for a whole year. The loss of hair was considered by females as the greatest of misfortunes. Martial, when uttering imprecations against the woman he detested, exclaims: "May the salamander, which possesses the property of making hair

fall off, leave upon thy head traces of his poison, or may the unsparing razor strip it entirely, that thy mirror may exhibit to thee an image worthy of thyself!"

Isaiah says: "Because the daughters of Zion have exalted themselves and have their heads high as they walk, making signs with their eyes and gestures with their hands; because they have measured all their steps and studied all their attitudes, the Lord will make bald the daughters of Zion, and will pluck up all their hair." If the prophet could, a few years ago, have risen from the grave and paid a visit to Paris, London, or America, and have seen the ladies of fashion with their hair cropped short, would he not have supposed it to be the accomplishment of his prediction? The old Jews wore their hair very long, and they thought nothing too valuable to enhance the beauty of this highly prized ornament. Josephus informs us that the guards of King Solomon had hair floating down their shoulders, and that every day they sprinkled the hair with gold spangles, which glistened exceedingly when the sun shone upon them. Absalom likewise powdered himself with gold-dust, and the second book of Samuel says that when he polled his head, the hair weighed "two hundred shekels, after the king's weight."

The practice of powdering the hair with gold was not limited to the Jews; but some of the Roman emperors adopted this practice. We know that Gallienus and Commodus powdered their hair. Suetonius relates that when Nero appeared on the stage, either for the purpose of playing on the lyre or reciting verses of his own composition, which his soldiers with drawn sabres obliged spectators to applaud, he had his hair sprinkled with gold-powder, that he might resemble Apollo. The Gauls imitated their conquerors in this, even so late as the fifteenth century.

Under the Republic in Rome, when virtuous and austere manners dominated, the head-dress of the women was extremely simple. It consisted in separating the hair upon

the forehead, and twisting it behind into a knot that ornamented the crown of the head. Antique monuments prove that such was the most ordinary hair-dress of the Grecian females, who knew well how to unite simplicity and grace.

With the progress of civilization and luxury, the head-dress became more complicated. The natural hair was curled with a hot iron called *calamistrum*, and was confined by a fillet of gold or jewels, which separated the false hair and kept it smooth. At other times the hair was parted in many tresses folded back upon themselves, and, surrounding the head, was fixed with a long pin. These two kinds of hair-dressing, through a graceful combination, formed a third, which united the knots upon the forehead and the tresses behind. Juvenal and Martial both mention this composite style. Married ladies affected to imitate the vestal virgins by wearing, like them, a veil, which concealed their hair, and descended upon the shoulders—with this difference, that the matrons had their hair curled and arranged with much art on the forehead. Boettinger (*Toilette of Sabina*) describes the different kinds of head-dress among the Roman ladies in all its varieties, as the *nodus*, the *diadema*, and the *tutulus*. The magnificent rooms, the luxury of the ointments, the slaves which had charge of the toilet of the matron, are described with many interesting details. It would be very difficult to enumerate the different kinds of head-dressing among the Roman ladies. Ovid, one of the oldest masters who wrote of the art of loving (*De Arte Amandi*), confessed that he would as soon think of counting all the acorns on an oak as to attempt an enumeration of all the ephemeral fashions of the day. Hair of light color, clipped from the heads of women in Germany and from the Gauls, was imported into Rome, and sold for its weight in gold.

The toilet was an important affair among the Romans. It occupied the greater part of the morning, while the various preparations, the number of slaves who were em-

ployed, and all the resources of luxury expended on it, consumed a great part of their enormous revenues. They used a large number of small instruments, constructed with much art and labor. Even the handles of their curling-irons were made of silver, curiously worked. Their combs were made of boxwood, shell, or ivory, highly polished, carved, and enriched with gold and often with precious stones. Martial has given a description of these articles, making verses upon them.

When the Romans established themselves in Gaul, they carried thither all their refinements of art and luxury, and soon rendered the province, particularly in the southern parts, a new Italy; but among the women they found a taste already developed for ornament and dress. The historians all acknowledge the wisdom and the beauty of the Gallic women; that they had an exquisite taste in dressing their hair, which they esteemed very highly, and of which they took the greatest care. Their fine tresses, arranged on the top of the head, formed their chief ornament. Although their hair was naturally light-colored, they endeavored to render it of a more brilliant color by the frequent use of caustic and colored pomades—because the fairer the hair, the more beautiful it was esteemed. The Gauls adopted by degrees the Roman customs. After five centuries of slavery, the Gauls escaped from the Roman yoke, and fell into the hands of the barbarians of the North, who imposed upon them the most austere virtues, and a name which was destined to celebrity among the nations. France arose from the united tribes that settled in Gaul, and proudly established herself on the ruins of the old Roman Empire.

The Gauls wore their hair very long, and, according to Pliny, this custom gave to the whole country the appellation of *Gallia comata* (hairy Gaul). On the foundation of the monarchy, the kings, desirous of having a distinctive mark of their pre-eminence, reserved the right of wearing long hair for themselves and the princes of blood. Their subjects

were forbidden to wear long hair; and this custom continued till the twelfth century, when Pierre Lombard, Bishop of Paris, at length prevailed on the king to repeal this prohibitory enactment.

The hair was the badge of honor, and in order to degrade a prince his head was shaved. Conspirators implicated in a treasonable plot were sentenced to cut off each other's hair. Fredegonde caused the hair of a mistress of her son-in-law to be cut off and hung up at the door of the prince's apartment. This proceeding was then considered as the height of barbarity.

Under the first dynasty, the French women wore their hair separated on the forehead, lightly curled on the temples, and again united in long, flowing tresses. After this style were carved the statues of the great personages of this period, which formerly decorated the portal of the Church of St. German des Prés. There were seen Ultrogoth, and Clotilda, the wife of Clovis. The latter was remarkable for two long tresses that descended to her shoulders, and were decorated with rings of pearls and other ornaments. The hair of the former waved in a graceful manner over her broad shoulders.

This was also the fashion adopted by the beautiful and terrible Fredegonde, and by Bertrede, the wife of Clotaire II. Odelia, the daughter of a German prince, allowed to be seen only under her veil, had her hair twisted in the form of a long cord.

Among the queens and princesses whose images are preserved on their antique tombs, those celebrated for their piety are represented with their foreheads covered with veils, without any appearance of hair. The wives of Charlemagne, without entirely concealing the hair, covered their tresses, and allowed only a few thin curls to appear around the face. Richilda, the wife of Charles the Bold, combed her hair up in a bunch, and concealed its extremities under a kind of toque. Richarda, the wife of Charles le Gros, plaited and twisted the lower half of her hair, and brought it back again

on each cheek, a fashion which was prevalent in the ninth and tenth centuries. The eleventh century was remarkable for the entire disappearance of the hair on the forehead, and the invention of bourrelets, which, in later times, degenerated into *hennins*, or horns.

At the end of the twelfth and during the thirteenth century, fashion made a retrograde movement. Blanche of Castile resumed the head-dress of Clotilda, her hair waving about her temples and her veil over her crown. Jeanne, the Countess of Toulouse, made some innovations; her hair, parted on the forehead, displayed her ears and fell in tresses over her shoulders; and she wore a chaplet, from which fell a thin gauze.

In the fourteenth century a celebrated lady, Clemence Isaure, lifted her sex from the obscurity enveloping them during the ages of ignorance and tyranny. A print of this lady is given by M. N. H. Jacob in the *Collection du Miroir*. The vain and coquettish Isabelle de Baviere invented the most extravagant fashions. She brought into fashion those head-dresses so extravagant in form and ridiculous in altitude, called horns or *hennins*, the wearing of which kindled such zealous fury in the preachers of the time. The ladies used hoods, strengthened in front with leather and hoops of whalebone to give them more consistency. Figure to yourself a head wearing this kind of funnel, surmounted with two huge horns and pads, with prodigious ears, and you will have a correct idea of the fashionable head-gear of that age. It must not be imagined, however, that this head-dress was worn generally; but the most ridiculous costumes were more especially adopted by those who courted distinction and disfigured themselves in proportion to their rank and dignity; and if monuments have been handed down to us of many strange dresses, the reason is that painters and sculptors have usually perpetuated only the portraits of distinguished people.

In the reign of Charles VIII in 1483, the ladies

renounced these extravagant fashions and arranged a head-dress of their hair by turning it up. In the gallant and splendid court of Francis I in 1515, the ladies also turned up their hair, and Queen Margaret, of Navarre, and her granddaughter frizzled the hair on both temples, and turned it back in front, adding sometimes to this head-dress a small cap of satin or velvet, enriched with pearls and precious stones, and ornamented with a handsome and tasteful plume of feathers.

Leonardo da Vinci has left us portraits of the most celebrated beauties of his time. In those of the beautiful Feronniere, the fair Joconda, and Petrarch's Laura, the hair is parted and bound on the forehead, while it is reunited behind, covering the ears and falling on the shoulders. The most characteristic mark of the fashion of this period is the loop, which, parting in front, gives so much sweetness to the countenance. Sometimes this was adorned with a diamond; sometimes there was only a black fillet, or a band of gold or polished steel.

This head-dress was charming, but the beauties who invented it became old, and the next generation, disdaining imitation, had recourse to what was more novel, though less graceful. Under the sway of the princesses of the Medici family all was changed, and caprice and frivolity became the characteristics of the time. The hair was imprisoned, the waist laced tight, and stiffness and restraint took the place of the elegant simplicity which had begun to distinguish the toilet of France.

Anne of Austria gave to the hair its natural grace and freedom and prepared the way for the charming head-dresses of Mancini, Ninon, Sevigné, and all the elegance which characterized the reign of Louis XIV.

At this time the ladies again used high head-dresses, which towered like three-story buildings. It is said that two English ladies, who had recently arrived in Paris, went to Versailles in June, 1714, to see Louis XIV at supper.

They wore an extremely low head-dress, which was then as ridiculous as one two feet high would appear at present. No sooner had they entered than they produced such a sensation that a considerable noise took place. The king inquired the reason of this extraordinary bustle, and was informed that it was occasioned by the presenee of two ladies, whose heads were dressed in a very singular style. When the king saw them, he observed to the duehesses and other ladies, who were supping with him, that if the women had any sense they would relinquish the ridiculous fashion.

Lady Mary Wortley Montague wrote from Paris describing the French fashions, and spoke of the fantastic absurdity of the dresses and the monstrous unnaturalness of painting the face. The hair was cut short, eurl'd about the face, and so loaded with powder that it looked like white wool; the cheeks were painted with a shining red japan, which glistened in a most flaming manner, so that the women had lost all resemblance to human beings.

Perukes were first worn about the time of Charles II, and were described in the poems of that day. During the reign of the same king the ladies had their hair eurl'd and frizzled with the nicest art, and frequently set it off with artificial eurls called "heart-breakers." Sometimes a string of pearls or an ornament of ribbon was worn on the head, and, in the latter part of the reign, hoods of various kinds were in fashion. A few years afterwards, in the reign of William III, the hair was much frizzled and eurl'd and ornamented with pearls, amber, and jewels. The perukes disappeared because of the ridicule of the comedians and poets. The wig remains to this day, only to be worn by some bald-head, who tries to hide the deficiency of the natural hair.

False hair followed as a substitute for the wig. In Portugal, as Mrs. Baillie informs us, the quantity of false eurls and braids of hair worn by every woman was really surprising. This, after a while, became a necessity; for the

heat of the climate, causing profuse perspiration, prevented the natural growth, and spoiled the natural curl of the hair. As a consequence it grew so thin upon the temples and forehead as to produce a disagreeable baldness, which could only be remedied or disguised by art.

In recent years, when false hair was so generally used, C. Manassei, of Rome, Italy, reported a large number of cases of *Area Celsi*, which, according to our observations, is a parasitic affection of the hair. False hair is frequently obtained from dead bodies in the dissecting rooms. This is nothing else than a dead epidermic production, retaining the products of the perspiration, the greasy secretion of the glands, and the epidermic scales. These, aided by the natural heat of the skin, offer a propitious ground for the development of any parasite, and cause, frequently, diseases of the skin in persons wearing such hair. Therefore it is better to preserve the natural hair in order, and thus obviate the necessity of using false hair to conceal baldness.

ATROPHY OF THE HAIR.

Under the name of *Alopecia* we shall consider every form of defect of the hair, whether congenital or acquired; and we shall try to state all the causes which are the most effective in producing decay of the hair. As a matter of curiosity we shall mention *Alopecia adnata*, a condition in which a newly born child shows a skin entirely free from hair (*atrichia*), either general or limited to certain spots. Cases of this kind were referred to by Hippocrates, Procopius, and other ancient writers, and some have recently been mentioned by Danz, Steimnig, Augustin, and Kaposi. What is remarkable in these cases is, that, with the missing hair, the development of the teeth is very imperfect, and sometimes they are entirely wanting. In a case referred to by Rayer, and in one by Steimnig, the hair was missing in several members of the same family.

When the hair falls off and no new hair grows in to

replace the loss, we have to do with a case of *Alopecia acquisita*, or baldness. Celsus divided this alopecia into two groups—*Defluvium capillorum* and *area*. Galen, Oribasius, Mercurialis, Sauvage, and Lorry distinguished alopecia as of three different kinds—*Defluvium capillorum*, consequent upon febrile diseases; *Ophiasis*, or *area*; and *Calvities*, or common baldness.

Ebb makes an accurate distinction in alopecia,—when the hair is irregularly absent on the head and on the face, *Phalacroscis*; or *Calvities* when the baldness affects the anterior portion of the head; *Ophiasis* when the hair is missing in the posterior portion of the head in form of lines; *Opisthophalacroscis* when the hair is missing in the posterior portion of the head; *Hemiphalacroscis*, when the baldness affects only one side of the head; *Anaphalontiasis* means the loss of the eyebrows; *Alopecia areata* is a baldness in the form of circles, and *Madesis* is when the hair is thin. But so minute a division has no practical value, either for the causes or for the treatment.

Calvities, *Calvities senilis*, *Alopecia senilis*, we find in old people. It begins in the frontal region and extends to the occiput, usually leaving the lateral parts of the head covered. The skin deprived of the hair appears smooth, shiny, and thin. In the beginning, the meati of the hair follicles are perceptible, but not afterwards. This baldness is very often met with among men, but very seldom among women. The cause is not known, and it can only be referred to the general involution of the system in old age. The microscopic examinations of the skin of the head affected by baldness in old age shows, according to Wedl and Neumann, the texture very thin, the fibres of the connective tissue dry and atrophic, and the cells of the fat scanty and dry. In the follicle of the hair no hair-bulbs are found, but in some cases lanugo hair still exists. The atrophy of the follicles of the hair and fatty degeneration are the causes of the decay of the hair, and of course new hairs can not grow in, because

their anatomical elements are not present. Therefore, nothing can be done for Alopecia senilis.

Alopecia præmatura is a baldness appearing in early life. This is sometimes susceptible of cure. Hence a careful study of its causes will properly find a place in this treatise. The causes of alopecia may be in the hair or in the follicle itself, and sometimes in the general health of the individual, so that alopecia is divided into idiopathica and symptomatica.

To the first group is referred *Alopecia areata*, which is a peculiar affection, also called *Area Celsi*, and *Porrigo decalvans*. The first description of this singular disease of the hair was assigned to the Roman surgeon, Celsus; but Celsus in the chapter *De Areis* comprehended every form of baldness, and he reserved the name of *'Οφιδόσις* to irregular alopecia having a snake-like progression. Sauvage was the first who called the irregular deficiency of the hair in many spots by the name of *Alopecia areata*, which Willan afterwards called *Porrigo decalvans*. He described the disease as consisting of simple round bald spots, the hair surrounding the spots being in a normal condition. The surface of these spots, which frequently coalesce, is very smooth, white, and shining.

In 1843 Gruby thought he could demonstrate the existence of a fungus in *Porrigo decalvans*, which was discovered by Audonin, thus establishing the disease as a phytoalopecia. But at this time all was confusion, and it was not easy to distinguish *Porrigo decalvans* from *Porrigo scutulata*. Cazenave distinguished *Herpes tonsurans* from the bald spots, and, as he believed, found a diminution of pigment, so he called the affection *Vitiligo*.

Hebra, in 1858, in his *Atlas of Skin Diseases*, showed *Alopecia areata* to be entirely different from *Herpes tonsurans*. At that time he accepted the fungus described by Gruby as the cause of the disease, but afterwards concluded that the disease was not due to a parasite.

Since that time the nature of this disease has remained

undetermined, and Hebra, Kaposi, and Neumann failing to prove the existence of any fungus, accepted the theory of Rindfleisch, that a disturbance of the nerves of nutrition is the cause of Area Celsi, representing it as an atrophic process. Tilbury Fox, who at one time described a fungus, giving also the figures, confessed afterwards that the supposed fungi were mere fat and epidermic cells.

Wilson referred to the case of a lady who had neuralgia in the head, and afterwards Alopecia areata appeared. This is the current theory, and many dermatologists are satisfied that the disease is a neuropathy.

Hermann Eichhorst* found spores on the hairs surrounding the bald spots of alopecia, but no mycelium. He said that the hair easily breaks and very seldom comes out with the root. He described the spores as round, yellowish corpuscles, which are not stained by Bismarck brown. Malaséz† maintained the presence of a fungus, and was followed by the observations of Buchner. These observations were again called in question by Dr. Jamieson, Michelson, and H. Schultze, who denied the presence of every parasitic form, and referred the disease to a disturbance of the vasomotor nerves.

In the Medical Congress of London, Vidal, Hardy, and Thin asserted the parasitary nature of Area Celsi, pointing out some cases of contagion and the presence of a bacterium in the hair follicle, which Thin called *Bacterium decalvans*. Wilson, Liveing, Allen, Jamieson, Schwimmer, Simon, and Unna maintained the other opinion, that the disease is due only to a trophoneurosis.

In the Congress of Washington, Robinson introduced the subject, again supporting different views. He directed his attention more to the skin than to the hair, and in his microscopical sections succeeded in finding micro-organisms, which

* Beobachtungen über Alopecia Areata, Virchow Archiv.; Bd. 78, p. 197.

† Note sur le champignon de la Pelade.

were present in the lymph spaces of the corium and sub-papillary layer, some in the papillæ and also deep down in the corium. They consisted of cocci in masses, colonies, and lines, and in rows in the lymph spaces. He regards them as the cause of the disease, and from their deep situation he explained the slight degree of contagiousness and the failure of parasitocides superficially applied.

This is the last point reached on this question. Alopecia areata begins in one or several places, sometimes simultaneously or in succession, irregularly distributed on the scalp. It occurs also on the beard, and frequently the eyebrows are affected. The hair becomes at once thin and whitish, falls from its follicles without breaking, beginning from the center of the spot and spreading outwardly. At first the follicles of the hair are perceptible as black points containing the root of the decayed hair; but afterwards they are seen no more, and the bald spot appears smooth, depilated, without any redness or scales. It appears less pigmented than the rest of the scalp, and a small, clear, scarcely perceptible lanugo hair is contained in the follicle. The round spot is surrounded by the hair in normal condition; but, examining closely those hairs, there are many already atrophied, which may be taken out of their follicles without producing any sensation. In a few days a spot grows from the size of a dime to that of the palm of the hand. By the coalescence of two spots or more we have various shapes. The disease in some cases produces no further lesions, but remains at this point. The small, pale hairs begin to grow again on the bald spot, becoming afterwards pigmented by degrees. In some unhappy cases the disease does not stop; but new bald spots appear, not only on the scalp and on the places which have recovered, but on every part of the body where hair exists. No subjective symptoms accompany this disease, no pain, no constitutional disturbance, only at times the relapse is felt by the patient from some itching sensation, on the spot which is affected.

Pathological alterations have been found, especially at the bulb of the hair, which Rindfleisch says is enlarged. Kaposi in many cases found the same enlargement with the peculiarity that the root was folded. Duhring describes the hair as abruptly terminating in a pear or club shaped extremity. Instead of the thick, long, luxuriant bulb of healthy hairs it is contracted, shriveled, and atrophied, and surrounded with a scanty supply of sebum and epidermic cells, the end sharply defined with a zigzag border. The root above the bulb retains its normal appearance, with the exception of being a little diminished in size. In the shaft, towards the free end, however, may be noticed an even and gradual distension, terminating in an oval swelling close to the end of the hair, which tapers and ends in a broken extremity. We have a sudden arrest of nutrition from the same cause, and rapid wasting in consequence.

In our practice we have had many cases of Alopecia areata, in none of which was there an evident perverted innervation. The patients lost their hair gradually, the baldness beginning with a small spot, and then spreading in a few days to the size of the palm of the hand. In some cases we have seen the whole head invaded, remaining entirely bald. From the head it passes to the eyebrows, and in men to the beard. The hair of the whole body also drops out. In this way we see a kind of progressive affection, and the theory of a local contagion explains better the progress of this disease. When the disease lasts for a long time, I have found that the patient regains his hair, which, after reaching a certain growth, falls off again. At this point, although no scales and no apparent signs of irritation occur on the scalp, the patient complains of an itching sensation, which precedes the falling of the hair. In these cases, in the resulting bald spot are noted the stumps of the atrophied hairs in the follicles, which eventually disappear, leaving the spot bald, white, and shiny.

Robinson denies any important alteration in the hair,

which is found only in an atrophic condition, and on the superficial layers of the epidermis. If the disease were due to a parasite upon the surface, parasitocides ought to cure it; but, in fact, they are not successful in controlling it. Robinson, therefore, directed his attention to the deeper parts of the skin. Sections of skin taken from a spot of alopecia, which had existed for one week, showed normal epidermis, but signs of inflammation in the corium, round cell collections in the sub-papillary layer, blood-vessels dilated, and small arteries containing fibrinous coagulum. The lymph channels in the corium were enormously dilated, and contained also a fibrinous coagulum. He found, moreover, a mild inflammatory condition of the sub-papillary layer of the corium; one case, which existed for several years and caused almost complete baldness, showed atrophy of all the structures except the blood-vessel walls. He would explain the sudden falling off of the hair by the thickening of the walls of the blood-vessels, and from the coagula in the vessels supplying the affected area. Robinson, therefore, thinks that the inflammatory changes leading to temporary or permanent baldness is a disease of the corium and not of the hair structure. He denies, too, the idea of a trophoneurosis, and the view that it was a vasomotor disturbance of central origin is not to be entertained; and he ascribed the cause to the presence of micro-organisms like those described by Von Sehlen. Their presence could be found in the lymph spaces of the corium and sub-papillary layer, some in the papillæ, and also deep down in the corium. They consisted of cocci in masses, colonies, and lines, and in rows in the lymph spaces. Diplococci were frequently seen.

We cordially agree with Robinson, that the hairs in recent cases of *Area Celsi* do not show striking alterations; but in old cases we find that the hair is badly affected. In one case treated with the application of a strong Wilkinson ointment we caused a desquamation. The scales were taken, washed carefully, and kept for some time in a solution of

caustic potash, and then washed again. Examined under the microscope, we found small, round corpuscles, which, in large quantity, were arranged around the follicles of the hair and amongst the epidermic cells which formed the holes through which the hair passed.

The hairs of some patients show enlargement in their body. The fibres of the hair are disconnected, and between them we can recognize small, roundish corpuscles. The extremity of the hair shows the fibres cut, and broken at a different length, which indicates that there was another enlargement where the fibres were broken. Thin has made the same observations; and although we agree with Robinson on the presence of the described alterations, and of the micrococci, we can not surrender the result of our own examinations, which enable us to maintain the presence of alterations of the hair and of corpuscles in the fibres of the hair and in the hair follicles.

In the beginning of the disease a solution of bichloride of mercury, from one to one and one-half per cent, for bathing, was found very beneficial; and also painting once a day with coal-oil produced satisfactory results. The action of the remedies has been helped by removing with a forceps the lanugo hairs, and also the hairs surrounding the spot. It may be that the benefit is due to the hair follicles remaining opened, and in this way permitting the introduction of the remedy deeper into the skin. Furthermore, when we remove from the follicle the atrophic hair, we give a chance to the follicle to produce a new healthy hair, with more vitality and vigor. For many years I could remark that when depilation in cases of tinea was resorted to, the hairs subsequently grew more luxuriously than ever.

This disease is exceedingly persistent, and the difficulty of determining its cause makes it obstinate to cure. Solutions of pyrogallol and chrysorobin have been praised as efficient remedies. Relapse very often occurs.

Cases of Alopecia idiopathica from the conditions of the

nervous system have also been described, but their clinical character is not so well defined on account of their rarity. In these cases the disturbance of the nervous system is clearly marked by a falling off of the hair just over the region supplied by the affected nerve. Ravaton referred to a case of a man who, under a strong nervous impression, became afflicted with amaurosis of the right eye, and the hair of that side of the head and the eyebrows and the eyelashes fell off at once. Romberg saw a young girl affected with paralysis of the face lose the hair in different places. Steinrueck remarked that in rabbits, where the sciatic nerve was severed, the hair of the leg grew no more, and what was present fell off. Cooper Todd referred to a case of a man who was affected with hemiplegia in consequence of an accident, and who lost the hair of the head and the beard.

Experience shows that people who work hard with the nervous system lose the hair more easily than others who work principally with the muscular system. In the same way, people who live amid sad or gloomy surroundings lose their hair. The fact exists, but the explanation is not very easy.

The baldness which results from disease of the skin or of the hair follicles and sebaceous glands is considered as a symptomatic alopecia. The hair is so vitally connected with the skin and its organs that when they are affected the hair must suffer in consequence. The condition of these organs is a guide for the prognosis of the alopecia. For instance, in sycosis, when the hair becomes a foreign body and is removed from the inflamed follicle, the pus escapes, and the follicle is rapidly restored. New hair will then be produced; but if the dead hair is not removed, decay of the follicle results, and hair does not grow again.

Baldness may result from inflammatory diseases, such as variola, acne, syphilitic papulo-pustular eruptions, Lichen scrofulosorum, Lichen ruber, Herpes tonsurans, Lupus erythematosus, favus, etc., or from eczema or erysipelas. The

exudation which occurs in these diseases causes a desquamation of the epidermis, and separates the root from the papilla and from the walls of the follicle; hence a falling out of the hair. Sometimes the alopecia continues only a short time, and the hair grows again; but when the inflammatory process results in cicatrization the baldness is permanent.

Baldness may occur during the course of general diseases—as typhoid, typhus, and puerperal fevers, anæmia, etc.—but the cause can only be attributed to a paralysis of the skin from a systemic effect upon the nervous system. It is generally pronounced but transitory, and recovery follows.

A very frequent cause of the decay of the hair and permanent alopecia is chronic seborrhœa of the scalp, known also under the name of *Alopecia furfuracea*. The scalp in the beginning is covered with small, thin, white, brilliant scales. If the head is washed with a solution of soap or with the yolk of an egg, the scales are easily removed, the skin appears white and smooth, and the epidermis quite normal, though in some points the ducts of the sebaceous glands appear red and enlarged. But after a few hours the scales appear again. This condition may continue for months or years without perceptible change in the nutrition of the hair. When cleanliness of the head is neglected the scales accumulate, and form ugly, dirty masses, adhering to the skin, and matting the hair. The only sensation which the patient has is an itching one. This seborrhœa is very frequently accompanied with symptoms of chlorosis in both sexes. Sometimes there is a slight acne on the face, and in women very often disturbances of the menses are present. It begins at the age of twenty or thirty, and lasts for several years. The patients very rarely call in medical help until the hair begins to fall off (*Defluvium capillorum*). The hair comes out gradually while combing and brushing, and after a while even when untouched; the top of the head at first becomes bald, and the hair of the forehead is lost,

leaving the skin white, smooth, brilliant, thin, and tense. The scales are the results of an oily substance mixed with epidermic cells, and are due to an alteration of the secretion of the sebaceous glands. The greasy matter is altered in its chemical constitution, and hypersecretion of the epidermic cells takes place, which in the same way is repeated in the follicle of the hair, and, in consequence, the hair falls. In the beginning, new hairs can grow up again in the follicles, and if the seborrhœa be corrected, they acquire strength and solidity; but if the seborrhœa continues, the new hairs have a short life; the follicles and their blood-vessels are atrophied, and then the baldness is permanent.

Microscopical examinations show that the root of the hair is atrophic and twisted, and the hairs which come out are thin and poor. Pincus refers to an atrophic condition of the corium of the skin.

In the beginning this affection is curable, and as long as the follicles of the hair exist, there is hope of saving the hair. But when the baldness has begun, and the skin appears atrophic, there is no hope for recovery.

Baldness affects men more frequently than women, and the causes of this seborrhœa we find very often in an anæmic and cachectic condition of the organism. Many times we do not find any cause, and the origin of the Alopecia furfuracea remains in darkness.

In the course of syphilis the hairs are lost, a fact which has been constantly noticed by every syphilologist. We have an Alopecia syphilitica in the first stages of the secondary symptoms, when the erythematous syphilitic eruption appears, and when there are papular or pustular eruptions on the scalp. In the first case alopecia is only temporary; but in the second case, when the hair follicles are destroyed by syphilitic ulcers, and the skin becomes cicatrized, the alopecia is permanent. The fall of the hair when no eruption exists on the head is the result of a trophoneurosis or disturbance of the nutrition of the hair. Sometimes, on

account of the chlorotic condition produced by syphilis, a seborrhœa invades the scalp, with the same effects as in Alopecia furfuracea.

The enemies of the mercurial treatment have attributed the alopecia to this remedy; but it is really the result of syphilis, which, whether treated with mercury or any other means, always produces a falling out of the hair. The hair falls out irregularly in different spots all over the scalp, but chiefly on the back of the head, the occipital region, and the temples, probably on account of the rubbing of these regions on the pillow. In the other forms of alopecia, on the contrary, the hair falls out particularly on the crown.

Alopecia syphilitica, which we find in nearly every case of secondary syphilis, is usually a transitory one, but sometimes it may be permanent. The hair dies in its follicle, and in consequence falls off, as happens after typhus or scarlet fever. Sometimes an eruption of syphilitic papules or pustules appears on the scalp, which, on account of the alopecia, are perceptible, producing an ugly appearance. In consequence of syphilis, not only does the hair of the head fall off, but also the eyebrows, the eyelashes, the beard, etc., are lost. With a rational mercurial treatment, when the symptoms of syphilis have subsided, alopecia ceases its ravages, and new hairs grow up.

In the treatment of Alopecia furfuracea, the scales should be softened by oils. This is best done by inunctions of olive-oil applied at night, covering the head with a flannel cap. Next morning the head should be washed with soap and water, or preferably with the spirit of soap. Spirit of soap is prepared as follows:

R. Saponis viridis.

Spirit. Vin. Rectific., āā pts. æq.

Digest twenty-four hours, filter, and perfume.

*

Rub the head with a small quantity of this spirit, using a brush or a piece of flannel, and wash off with warm water.

This dissolves the grease, and then soap and all may be washed away, and the head is thoroughly clean. The hair is then dried, and some ointment is applied to prevent the reformation of crusts. It is not necessary to cut the hair off, although by so doing the different application can be more easily made.

People frequently object to these manipulations for fear of causing a further falling out of the hair, but they can be assured that only the loose hair will fall out.

The addition of pyrogallic acid to the fat, from five to ten parts, gives good results in the treatment of seborrhœa. This salve is applied at night with a brush, and nothing is done in the morning. Salicylic acid is also beneficial in these cases and can be applied in the following form :

R.	Acid Salicylici,	5 to 10 pts.
	Spirit. Vini Gallic,	100 "
	Glycerini,	20 "

The remedies which are credited with power of strengthening the hair belong generally to the class of the astringents.

An alcoholic solution of tannin and veratrine is very frequently used with some profit. The following formula is recommended by Kaposi :

R.	Tannin pur.,	gr. xij.
	Spir. vin. rectific.,	3v.
	Spirit. lavand.,	3j.
	Æther sulfuric,	3ij.
	Glycerin,	3ss.
	Olei bergamotte,	gutt x.

Misc.

With this mixture rub the head twice a day. The same composition can be made somewhat stronger by adding half a drachm of tincture of cantharides. Another formula recommended by Dupuytren is thus composed :

R.	Medullæ ossium,	3ij.
	Extract Chinæ,	3ij.
	Tinctur. cantharid.	
	Succi citr. recent. expr.,	āā 3j.
	Olei bergamotte,	℥j.

The following formula is also recommended:

R.	Butyr. de cacao,	3jss.
	Unguent emollient,	3ss.
	Olei amygdal.,	3ijss.
	Liquefactis, admisce.	
	Sulphat. chinin,	Ḑss.
	Acid sulphuric,	gutt. q. s.
	Aq. rosar.,	3ss.
	Olei citri,	3ss.
	Olei bergamotte,	Ḑj.
	Olei lavandul.,	gutt. xx.
	Tannin,	Ḑij.
	Tinctur. canthar.,	3j.
	Aq. coloniensis,	3iij

Misce exactissime.

The Alopecia furfuracea in its beginning is easily cured, but when the atrophy of the follicles of the hair has begun, no hope remains for the cure of the resulting baldness.

As we remarked in the beginning of this article, very frequently seborrhœa is accompanied with a chlorotic condition, and in these cases it is necessary to use a rational internal treatment. Preparations of iron with some arsenic are advisable in chlorotic females, with a good and nutritious diet. In men affected with dyspepsia or with chronic catarrh of the stomach, we can prescribe different mineral and alkaline waters, or different powders, as bicarbonate of soda, phosphate of soda, carbonate of magnesia, and sugar, in equal parts; one teaspoonful to be taken three times a day, dissolved in water. All these remedies, with the local treatment, must be continued for some weeks or months.

The same treatment applies also to the alopecia consequent upon small-pox, erysipelas, typhus, etc.

In the Alopecia syphilitica, it is necessary, of course, to use mercurial treatment, and externally alcoholic applications. A salve composed of white precipitate is recommended in these cases under this formula:

R.	Merc. pracip. alb.,	3ss to 3j.
	Unguent emollient,	3j.
	Mise.	

ATROPHY OF THE HAIR.

The hair frequently suffers from alterations in its structure, loses its brilliant appearance, becomes dry, rough, brittle, and disposed to split and break off. These alterations occur in consequence of disturbed nutrition, from inflammations, new-growths, and ulcerations in the hair follicle. Herpes tonsurans and favus furnish the best examples of this condition. The same appearance is sometimes found in high fevers, as typhus and puerperal fever. In many individuals, when the hair has reached a certain length, it splits at the end into two or three fibres, a condition of no special importance. The cause is a failure of the nutritive elements to reach the end of the hairs.

A singular affection of the hair, of which brief mention may here be made, is that described by Beigel as the *bursting of the hair*, and called by Kaposi *Trichorexis nodosa*. The hairs of the beard and of the eyebrows are attacked in preference. In each hair there are from one to five or six swellings, at some distance one from the other, and all together give an appearance as if the beard had been burnt. The hairs are very brittle, breaking at the place of these swellings, and the remaining part ending in a kind of knot.

The hair under the microscope shows a spindle-shaped enlargement in its shaft, the cortical part is burst, and the fibres broken have an appearance as if two brushes were stuck together. No trace of fungi was ever found. The cause of this affection, according to the opinion of Beigel, is in the existence of gas in the shaft of the hair, which causes the swelling of the hair and the splitting of its fibres. But this is only a hypothesis, with the question unanswered, How can gas get into the hair? Shaving the beard is advised as the best means to get rid of this trouble; but in several cases, when the beard began to grow again, it was affected with the same trouble.

GENERAL TREATMENT OF THE HAIR.

The hair must be cleaned, combed, and brushed, in order to maintain its beauty and to preserve it from decay. To increase its beauty and to follow the changing fashions, the hair is dyed, curled, and arranged into different styles. Therefore we will in the following paragraphs briefly consider the influence of these manipulations upon the health of the hair.

EFFECT OF DYEING THE HAIR.

Much of the beauty of the hair being attributed to its color, ladies with hair of a less fine color are induced to change it artificially by means of washing or salves more or less injurious to the skin and to the hair. The prevailing taste manifests at various times a particular predilection for certain colors and a decided aversion for others. At one time black hair is disliked; at another light hair is not regarded; hence some women are inclined to use every means to disguise and change the color of their hair.

The Germans held only light hair in estimation, and those who had not light hair used a kind of soap composed of goat's-tallow and ashes of beechwood, called Hessian soap, to bleach it. The Roman ladies had a predilection for this color. Ovid says the peruke-maker of Rome bought up all the spoils of German heads to gratify the caprice of the Italian dames, who were determined to conceal their fine black hair under a light wig. The fathers of the Church preached against this practice, considering the staining of the hair as adultery, and dyeing it black as a detestation of that whiteness which belongs to the head of the Lord. (Revelation i, 14).

Many compositions have been used for this purpose, of which some are valueless, and some are dangerous. At an advanced age, when gray hairs begin to be more numerous than the black, pomades are used, which are compounded

with grease, burned cork, bark of oak, etc., which soil the hair without dyeing it.

Although it is not our purpose to write on the art of the perfumer, nevertheless, for the benefit of the reader, we shall give some formulæ which may be of use.

One, for instance, is prepared in the following way: Break and pound in an iron mortar gall-nuts, and boil in olive-oil till they grow soft; then dry them and reduce to a fine powder, with which incorporate equal parts of powdered charcoal of willow and common salt; to this add a small quantity of lemon and orange peel, also dried and well pulverized. Boil the whole in twelve pints of soft water till the sediment at the bottom of the vessel assumes the consistence of a black syrup. With this pomade the hairs are stained and covered with a cap till they are dry, and then are combed. The anointing is to be renewed once a week.

Another preparation is composed of pulverized litharge, lemon-juice, and vinegar in equal parts. These must be boiled over a slow fire for half an hour. With this tincture wet the hair, which in a short time turns to a fine and glossy black.

For dyeing the hair, it is better to wash the head with a ley made of wood-ashes and a small quantity of alum. This wash prepares the hair for whatever tint it is desired to give it, in the same way as mordants are used in dyeing. After washing the hair with this ley, it is to be combed with a horn comb, dipped in any matter that can impart a black color, as oil of cedar mixed with liquid pitch.

There are many formulæ found in popular books, which we only cite as curiosities; for instance: Take oil of costus and myrtle one and a half ounces; mix in a leaden mortar; add liquid pitch, expressed juice of walnut leaves, and ladanum, one-half drachm each. Another is composed of gall-nuts, black lead, and frankincense, one ounce of each; add a sufficient quantity of gum-arabic mucilage made with a decoction of gall-nuts.

For the purpose of making flaxen hair many preparations are used. A very successful old formula is the following: One quart of ley prepared from the ashes of vine-twigs; briony, celandine roots, and turmeric, of each half an ounce; saffron and lily roots, of each two drachms; flowers of mullein, yellow stechas, broom, and St. John's root, of each one drachm. Boil these ingredients together and strain off the liquor clear. Wash the hair frequently with this fluid, and in a little time it will change to a beautiful flaxen color.

For a light chestnut color, it is necessary at first to clean the hair with dry bran, or warm water in which alum has been dissolved. Then take two ounces of quicklime, slack it in the air, and reduce it, along with an ounce of gold and half an ounce of lead, to a fine powder, and sift it thoroughly. Wet the powder with a small quantity of rose-water, rub the hair with it, let it dry again in the air, or dry it with cloths dipped in a little warm water. This composition does not stain the skin.

The Romans admired hair of this tint, and called it by the celestial name of Apollo.

Other compositions, made of different mineral salts mixed without scientific knowledge, are dangerous for the skin, and physicians have reported cases of dermatitis and eczema of the scalp as consequent upon some substances employed for dyeing the hair. The substances which were in great demand some time ago were *l'eau d'Egypte et l'eau de Chine*, and also in England known as the Grecian water and the essence of Tyre. Their basis is the nitrate of silver. There is no doubt that the nitrate of silver will change the lightest hair to black; but it has not the property of producing a permanent black, for the stained hair on exposure to light soon becomes of a reddish tinge, which instead of improving will render it altogether a laughable caricature. All these preparations of nitrate of silver are made with gum arabic water, and scented with essence of bergamot or any other perfume that is most agreeable. All the hair-dyes

are falsely said to be vegetable, but they are of the same description as the above.

Chemists have not given this subject much attention, and it has been hitherto left wholly in the hands of perfumers and patentees. By the analogy existing between the hair and wool or silk, the best way for dyeing it is to make use of the means employed by dyers. Proeure, therefore, walnut water, which is prepared by steeping for a year in water the green shells of walnuts, and with this wash the hair; then make an aromatic tincture of galls, by scenting the common tincture with any agreeable perfume, and with this wet the hair, which must next be moistened with a strong solution of sulphate of iron. It is necessary to be careful not to stain the skin, for the substances advertised as not discoloring the skin are humbugs.

CURLING THE HAIR.

When hairs are exposed to heat they become slightly contracted, and twist up in different ways. The moisture which the hair naturally contains is evaporated by heat, and the cells are drawn nearer together; hence, when the hair is dampened again by fog, or by atmospheric air, it uncurls and becomes lank. The reason is just the same as when we hold a strip of paper near the fire. It bends and curls up, but as soon as it is moistened it returns again to its previous condition. The curling-iron acts on the hair by abstracting more moisture from one side of it than from the other, and consequently causing it to bend, as we have seen in the instance of the paper. The stronger the hair is, the more easily is it curled, and the longer also will it remain curled. Hair which is weak and dry will not take nor keep curling well. The process of cleaning the hair with solutions containing some ammonia will promote the tendency of the hair to curl, and also to retain the curls which have been formed. Any oily or alkaline substance is good to prepare the hair to be curled, and to keep it in damp weather, or in ball-

rooms, or in theaters, where it is exposed to moisture from the perspiration and from the breath. Oil when spread over the hair prevents it from imbibing moisture, which causes it to lose the curl. The employing of hot iron to aid in curling the hair is said to be injurious to its growth. Mme. Voiart says she has seen the finest hair become thin and fall off from this destructive practice. The hair curled frequently with this means becomes thin, but we see that iron can not have any effect beyond the part of the hair which it touches, and if care be taken that it is not applied too hot, we see no objection to its use. The daily application of a hot iron, notwithstanding the greatest care, will in a short time prove injurious; but only so on the shaft of the hair, and it can not prevent its future growth.

More injurious, perhaps, is the other way of curling the hair with papillotes, imprisoning them in paper for many hours. The hair gets its nutrition from the root, and the nutritious fluid absorbed from the papilla of the hair follicle is brought into the canal existing in the middle of the hair. When the hair is so tightly imprisoned, the nutritious fluid is prevented from reaching the whole hair, which consequently becomes thinner and atrophic. Many cases of Alopecia prematura in young ladies are due to this practice of curling the hair.

DRESSING THE HAIR.

The hair will be more or less thick and silky, according to its nutrition. Whatever deprives the hair of its free and natural flow, and of its natural moisture, tends to check its growth and make it thin and short. Whatever, also, may draw or twist it from its natural direction will also prove injurious. For these reasons, as we have before remarked, the different methods of curling the hair, twisting and plaiting it, are injurious to its natural growth.

The hair, on emerging from the skin, assumes such a direction that those on the anterior part of the head, almost

without variation, pass obliquely forward, and drop over the forehead; those of the middle, and, to some extent, those of the posterior part, follow a perpendicular direction; and those of the remainder of the posterior and inferior part cross obliquely, so as to produce a natural fall along the posterior part of the neck. When a hair is drawn out according to its direction, there is no pain; but by drawing a hair in a direction opposite to its natural one, severe pain is produced. When women change the method of hair-dressing by drawing the hair in an opposite direction, they feel an uncomfortable and uneasy sensation in the head until they acquire the habit of having the hair dressed in that way.

The hair passes outward in a very oblique direction; therefore, when it is pulled out of this direction the nutritious fluid which rises in its medullary canal, to nourish its cells, and on which the color and gloss depend, will not find its way. This is what we complain of in the cases of curling the hair, especially using papillotes, and still more when the hair is twisted, as it often is, into a hard knot or bow on the top of the head, or plaited in a fanciful manner. When, however, it is not too tightly twisted, but is left loose and easy, no injury can follow.

Sometimes, in consequence of bad dressing of the hair, or for some other reason, it falls off, and no sign of seborrhœa exists to which we can attribute the alopecia. In these cases we can say that, so long as the follicles and the hair papillæ are uninjured and rudiments of new hair are observed in the bald spots, there is still hope of recovery; but when the blood-vessels cease to supply nutritious materials and the follicle becomes atrophied, the baldness is permanent.

The different changes which the hair, the skin, and the external organs of the body undergo by age, proceed entirely from the laws which govern nourishment, and not from the action of external surroundings.

As a sign for recognizing whether a bald head is capable of being improved, it was said that if the skin be rubbed

with the hand, and becomes red, it would show that it is still impressionable. We believe that the best sign is when the hair follicles are still perceptible. Therefore, we examine the head with the magnifying glass, and when we discover the follicles still existing, we do not abandon hope of doing some good. The stimulant remedies are the best to apply to arouse the vessels from their torpor.

We have already given some prescriptions in the section on *Alopecia*, which can be used with some benefit. Now we add some other formulæ which are in high consideration. The grease of the bear is employed through a popular prejudice, because the bear is a very hairy animal, and its grease is supposed to effect miracles. It has a strong smell, never can be had pure, and should be avoided. The French pomatum is held in great esteem by the perfumers. The following is the way to prepare it: Into a proper vessel put two and a half pounds of prepared hog's-lard, with two pounds of picked lavender flowers, orange flowers, or a mixture according to your choice. Knead the whole with the hands into a paste as uniform as possible. Put this mixture into a pewter, tin, or stone pot, and cork it tight. Place the vessel in a vapor-bath, and let it stand six hours; then strain the mixture, and press. Throw away the flowers used, pour the melted lard back into the same pot, and add four pounds of fresh lavender flowers. Stir the flowers together while the lard is liquid, and continue this process until about ten pounds of flowers have been used. Having separated the pomatum from the refuse of the flowers, it is set aside to cool. The reddish-brown liquor extracted from the flowers is poured off, the pomatum is washed in several waters, stirring it with a wooden spatula to separate any remaining watery particles, till the last water remains perfectly colorless. Then the pomatum is melted in a vapor-bath, and allowed to stand an hour, when it is left to cool. This last operation is repeated until the watery particles are entirely extracted, when wax must be added. The pomatum will be

very fragrant, and is a good preparation for improving the gloss and the luxuriance of the hair.

HARD POMATUM.

- R. Unguent. simpl., 3vj.
White wax, 3iij.

Melt together in an earthen pan immersed in a larger with boiling water over a steady fire. When properly incorporated it is taken off, stirring it with a spatula until it be about half cold or congealed, and then put into small pots or rolled in paper. It can be flavored according to the taste.

SOFT POMATUM.

- R. Hog's-lard, lbs. 25
Mutton suet, lbs. 8
Oil of bergamot, 3vj.
Essence of lemon, 3iv.
Oil of lavender, 3ss.
Oil of rosemary, 3j.

Misce.

ORANGE POMATUM.

- R. Hog's-lard, lbs. v.
Mutton suet, lb. j.
Eau de Portugal, 3iij.
Essence of bergamot, 3ss.
Yellow wax, 3iv.
Palm-oil, lb. ss.

Mix as for hard pomatum.

ROYAL HONEY WATER.

- R. Ground coriander seeds, lbs. 28
Sweet marjoram, bunches 28
Calamus aromat., lb. j.
Yellow saunders, lb. j.
Orange and lemon peel, lb. j.

Beat the last three substances separately into a gross powder; mix the whole, and put them into a sixty-gallon copper still, and add to them twenty gallons of proof spirits and the same quantity of rain or spring water. Have all the joinings of the apparatus well luted, and leave the ingredients in this state without fire for forty-eight hours. At the end of this time begin to distill by a very gentle heat. Increase the fire after the first half hour, and keep it regular thereafter till the termination of the process. Draw off about twenty-six or twenty-seven gallons, or continue so long as the spirit will burn, applying the fire in a small saucer. Next day, when the still is perfectly cold, let it be well cleaned out, saving the remaining ingredients for further use.

Now return into the still the spirits drawn off, and add thereto ten or twelve gallons of water, then put in :

Nutmegs,	3xiv.
Cinnamon bark,	3xij.
Peppermint,	3viiij.
Cassia bark,	3xl.

These must be separately bruised in an iron mortar. When the above are broken, take forty ounces of storax, forty ounces of gum benzoic, forty ounces of labdanum, forty vanilla-pods; break and bruise these also, but make as little dust as possible. These are to remain in the liquor in a cold state for forty-eight hours, luting and stopping close as before. At the end of this time kindle the fire, and work off slowly at first until twenty-six gallons are distilled. Mix all the different runnings together in a copper vessel kept for this purpose, and what may come over after the twenty-six gallons are distilled must be kept for other purposes. Now add to these twenty-six gallons, drawn off by the second distillation in a copper vessel that will hold forty gallons, six gallons of orange-flower water and eight gallons of rose-water. Then mix together ten ounces of spirit of musk, ten ounces of spirit of ambergris, half an ounce of good essence of bergamot, and half an ounce of oil of rhodium. When properly mixed, put all these into the copper vessel, and stir the whole well together. Add a quart of milk which has stood for a night, and which has had all the cream taken off; agitate and mix the whole well together, and stop up the vessel close till the contents are to be used. Allow to remain for one month. When it is found, by drawing off a little in a glass, that the milk has fallen to the bottom, the whole may be drawn off into clear glass bottles. The older it is the better.

The following liniment is also recommended :

R. Spirit of rosemary,	3ss.
Honey,	3ss.
Lard,	3j.
Oil of lavender,	gtt. iv.

Mix and rub on the roots of the hair.

WASHING THE HAIR.

It is necessary to wash the hair, which becomes greasy and dirty from the dust of the atmosphere and from the epidermic cells. This washing the hair is much more required when pomatums are used; since, by combining with the scales of the epidermis, they form a thick crust, very

detrimental to the gloss and beauty of the hair and to its nutrition. Old authors disapproved the practice of washing the hair, for fear of a person's catching cold.

For ladies to wash their hair is a necessity. The most beautiful hair is the most difficult to keep clean, and it requires to be often washed. The most convenient way of washing the hair is with good soap and warm water; it must then be allowed to dry quickly. After the hair is dry it should be immediately combed and brushed. For washing the head the essence of soap, which is the basis of all shampooing, is good. The following formula can be recommended: Put two pounds of castile-soap, shaved or cut small, into three pints of spirit of wine, with two ounces of potash. Melt the whole in a hot-water bath, stirring it with a spatula. When it is thoroughly melted, let it settle, pour off the clear liquid, and perfume it with any fragrant essence.

There are other washes made with ammonia and borax, but the best are those where the basis is soap.

The head must be washed at least once a week, so as to remove the dirt and the scales which naturally remain on the scalp.

Water, by itself, imparts a fine gloss to the hair; but in many cases the hair appears too dry, and in these cases it is better to use an oil which imparts a fine silky gloss and a brilliant appearance.

Some oily substance fills up the imbrications described on the hair, and prevents the absorption of moisture.

The greater number of hair-oils are prepared by perfumers from formulæ which are kept secret, and are sold under specious names, with the most extravagant praises. The articles so advertised are very expensive, their qualities are vastly overrated, and the promises held out are seldom fulfilled.

The imperial oil is very good, the formula of which is as follows: Take one gallon of olive-oil; put into a pipkin

with a bag containing four ounces of alkanet root, cut and bruised; subject the whole to a moderate heat, but do not allow it to boil until the oil is completely impregnated with the red color. Then pour the whole into a jar, let it stand till cold, and add four ounces of essence of bergamot, four ounces of oil of jasmine, and three ounces of *eau de mille fleurs*. When properly mixed, put the compound liquid into small bottles for use.

Another good compound is prepared with behn-nut oil, amber, bergamot, and girofle rosemary, in the same way as the above mentioned. Years ago macassar oil was held in high estimation. It is made of olive-oil, one pound, colored with alkanet root, adding to it one drachm of oil of origanum.

As has already been stated, curling and twisting the hair injures it by preventing the free passage of the nutritious fluid from the bulb through the tube. The hair twisted up in hard knots on top of the head is bad for the hair. But frequent brushing will remedy this difficulty. At the time of combing the hair, applying a little oil, prepared according to the formulæ above given, is useful. The hair should be brushed with a rather stiff brush, dipped by the surface in a mixture of water and some mild spirit, like the *eau de Portugal*. It is to be combed afterwards with a fine comb. The brush, again dipped in the *eau de Portugal*, is to be used, if the hair is naturally greasy; but if dry, some pomade or oil is preferable.

Here is the formula for the manufacture of Portugal water:

- One pint of orange-flower water.
- One pint of rose-water.
- One-half pint of myrtle-water.
- One-fourth of an ounce of distilled spirit of musk.
- One ounce of spirit of ambergris.
- Shake all together.

As regards the cutting of the hair, it is to be first said that the hair of children should be kept short until they are

eight or nine years old. It should never be allowed to grow long from notions of pride, because these are apt to sacrifice what would in adult life have been a fine head of hair.

The finest hair is to be found upon the heads of girls where it has been cut short until their tenth year. Cutting the hair two or three inches, once in three months, promotes its growth and prevents splitting and consequent arrest of growth. Cutting the hair does not increase the number of individual hairs.

A practice which was formerly much in vogue, but which now is, fortunately, abandoned, was powdering the hair. The grease of the head and this powder formed a kind of paste, which adhered tenaciously, and rendered cleanliness almost impossible. Besides, it frequently resulted in crusts, composed of powder, epidermic scales, the secretion of the sebaceous glands, etc. These crusts prevented the natural perspiration, and thus produced an irritation in the follicles of the hair. This artificial crust is capable of producing an inflammation of the sebaceous follicles, with consequent seborrhœa. The fatty secretion, with all the mentioned dirty matter, macerating the epidermis and irritating the derma, produces eczema, impetigo of the scalp, and all the consequences we have already pointed out. Fortunately the fashion of wearing the hair powdered is about over.

SUPERFLUOUS AND REDUNDANT HAIR.

The growth of the hair beyond the normal condition constitutes an abnormality, which is known as hypertrophy of the hair—*Hirsuties*.

The hypertrophy of the hair is always in those regions of the body which are normally covered with hair at some age, or, at least, are furnished with lanugo. We have seen children covered all over the body with long hair, which was called *Hirsuties adnata*.

Hirsuties acquisita or *hypertrichosis* is usually limited to a circumscribed part of the body. Hair is developed on moles and warts; but what is more curious is the hair which grows on the lips and the cheeks of women. Usually women furnished with beard are unmarried maids, with a male appearance. We have seen girls furnished with a full beard. They are usually exhibited in the curiosity museums.

Frequently women have superfluous hair, which, because it grows in unusual places, detracts from their beauty, and renders its removal imperative; for fashion is more imperious than nature, and its commands must be obeyed.

The history of depilation can be traced to very ancient times. In Greece and Rome it was employed by women to remove the hair which the heat of the climate rendered inconvenient. The same practice is followed at present among the Turkish women, who employ it in common with the men, and for a similar reason. In ancient times it was not confined to the women. Perseus, the satirist, addressing a young rake, asks why he bestowed so much care on his beard, while he took such pains to remove the hair from every other part of the body.

Superfluous hair is seen at the beginning of middle life, probably because, as we know from the chemical analysis of the hair, it contains phosphate of lime and albumen, which substances are also the constituents of the bones. * During middle life the bones have completed their growth and firmness of structure, and the phosphate of lime is left free to be employed in promoting the growth of the hair. At this age we see in many women hair on the upper lips, the chin, the cheeks, and the arms; and in men within the nostrils, on the tips and sides of the nose, the entrance of the ears, and the back of the hands and fingers, while the eyebrows become coarse and shaggy.

From what we have laid down respecting the anatomy of the skin, it may be readily inferred that it must be very difficult, if not impossible, to eradicate it from any part of

the body in such a manner as to prevent its future growth. The roots lie so deep that it is hopeless to think of getting any external wash or application which will destroy them and leave the skin uninjured. When we pull the hair out by the roots, we see that there are still thousands of roots ready to start through the skin. In the case of favus, where the depilation is repeated many times so as to remove every hair, the best crops of new hair result.

To remove superfluous hair many substances were recommended as depilatories. The Jewish women, among whom a high forehead free from hair is considered as an indispensable mark of beauty, are said to use as a depilatory a bandage round the forehead of woollen cloth, which must be of scarlet color.

Madame Elise Voiart, in her *Encyclopédie des Dames*, has taken care not to give receipts for any depilatory which might be dangerous, meaning such as are composed of orpiment, arsenic, etc. We wish to give the particulars, so as to show to our readers the danger of employing them.

One depilatory substance is muriatic acid, which is mixed with rectified spirit. On rubbing the hairs with this fluid they fall off, but the acid must be concentrated. It burns the hair, but endangers the skin. If too much diluted, it may still injure the skin without affecting the hair.

A formula which acts with success is:

R.	Gum. ivy,	3j.
	Orpiment,	} ʒj.
	Ant's eggs,		
	Gum arab.,		

Make a powder and reduce to a paste with vinegar.

Applying this paste on the skin, the hairs are destroyed, but the skin is irritated, gets sore and chapped, and often becomes eczematous.

BAYLE'S DEPILATORY.

R.	Rusma.	
	Quicklime, pts. æq.

Mix with water and make a strong, thick paste. Apply the paste, let it dry, and rub off with a wet cloth.

This is the Turkish depilatory, sold in Constantinople, and in the East. Rusma is difficult to be procured, and seems to be a composition of quicklime and sulphuret of arsenic or *realgar*. But prepared in this way it gives no satisfaction. The opinion is that this rusma is made from the quicklime of that country, which is different from that of other countries.

The speediest depilatory is a mixture of orpiment and quicklime. Its action depends upon the quantity of orpiment, but it is injurious to the skin. The proportions are, of quicklime, eight ounces, and of orpiment, one ounce; make a powder and sift. It is better to mix with it some barley-meal, so as to secure an action not so strong. Form a paste with warm water, apply on the place for a few minutes, and wipe the hair off with warm water. It is necessary to be careful not to leave it too long, otherwise the skin will be cauterized. One needs to be very careful with depilatories of unknown composition, which are generally of no account.

The best depilatory is the razor; the popular notion that shaving thickens the hair and tends to promote the very evil against which we recommend it as a cure, is altogether a prejudice, and quite erroneous. Cutting the hair certainly lengthens it, and the oftener it is cut the more rapidly it will grow; but it does not increase the number of hairs. Shaving is the best means of removing mustaches and hairy moles from the faces of women, although it is a procedure which is not very agreeable.

Depilatory paste injures the skin, and should not be used. There has been a constant effort on the part of dermatologists to find some method of destroying the hair follicle, and thus remove hairy growths permanently. With this end in view, the hair has been removed and an electric needle introduced into the follicle, so as to destroy the papilla by means of electrolysis. The method is sufficiently painful, but the result is satisfactory. Hardaway, of St. Louis, and Piffard, of New York, recommend electrolysis for this purpose; and Dr.

A. M. Brown, of Cineinnati, in a paper read before the Medical Society, elaims to have had good results from electrolysis in removing superfluous hair. He used the galvanic current and a platinum needle attached to the negative electrode.

Through a magnifying glass the hair is selected, and taken with a pair of forceps, and the needle is introduced into the follicle as far as possible, and then the individual takes hold of the dampened sponge in connection with the positive electrode. The needle is kept in the follicle from half a minute to one minute. For the platinum needle, Dr. Brown substituted a silver one, which, not being so good a conductor of electricity, does not become so hot, and in consequence is less painful. He elaims that in this way the hairs are permanently destroyed in the proportion of eighty per cent.

We do not like to take charge of such cases, because of the waste of time, but we have used this method in two or three cases with satisfactory results. I prefer to remove the hair at first, and with the aid of the lens I introduce the needle into the meatus of the follicle, apply a weak current, and let it remain some time. This prevents the intense pain of the stronger currents—a fact which is certainly appreciated by the patient.

The electricity destroys the follicle and the papilla by a chemical solution of the albuminoid principles, and cauterization is not necessary. We never remarked pereceptible sears consequent upon the application of this method.

SHAVING TOILET.

The habit of shaving as in most parts of Europe, of wearing the beard long as in Asia, or of plaiting it as in China, gives to the face various expressions by which each nation is eharacterized. A manly and eharacteristie physiognomy, expressive of powerful energy, can not be deprived of this exterior ornament without losing a part of that

character. That of the Eastern nations coincides with their natural vigor, and forms a contrast to the effeminacy of their habits. The opinion that shaving off the beard diminished the muscular power prevailed formerly, and the old Germans, who let their beards grow, were taken as examples of strength. Of course we do not believe that shaving produces weakness; but, in a general point of view, a fine beard shows strength. A lion deprived of its hair, or a cock deprived of its feathers, would lose its characteristic appearance of strength and courage. Every body knows that eunuchs have no beards, or very little, showing their want of power and their emasculation. But as shaving is so common, we wish to make a few remarks in order to show how it may be done so as not to be an injury to the skin.

A good razor and a razor-strop are the essential requisites for the shaving toilet. Warm water is the best and most general menstruum for forming a lather. Those who have hard and thick beards ought first to wash with warm water and soap the part to be shaved, and then apply the lather. The razor ought to be invariably dipped in warm water and well dried, and even passed once or twice over the smooth side of the strop before being used.

It would appear, at first glance, that the hair is more easily cut dry than moist, as it is easier to cut a dry piece of paper than a moist one; but the oily quality of the hair prevents the razor from cutting directly through, and allows it to slide along the hair, cutting it obliquely and dragging it, thus producing pain. Any alkali is good for rendering the beard crisp and brittle, because it combines with the oil of the hair. But the alkali must be combined with the oil so as to make it innocuous to the skin.

The following composition is the best Spanish soap for shaving :

Soda,	pints, 60.
Olive oil,	" 60.
Water,	" 30.

The soap dissolved in spirit of wine, and afterwards evaporated, gives a beautiful, transparent soap, which forms an excellent, creamy lather. After shaving, some rice-powder applied to the face will remove the irritation of the razor, and protect the surface of the skin. We can not rightly attribute to shaving any skin disease, with the exception of the transportation of the spores of *Trichophyton tonsurans*, which on the epidermis produces that form of skin eruption commonly known as barber's itch, ringworm, which is a form of *Herpes tonsurans* or *Tinea tonsurans*, due entirely to the development of this parasite on the epidermis. It begins as a small, red, round spot, which spreads peripherically, healing up in the center, and forming in this way rings on the face. The edges of the patches show small groups of vesicles, which, bursting, produce small crusts and scales. Like eczema, *Herpes tonsurans* can be the cause of sycosis of the hairy parts of the face. Then pustules and nodules are developed, as in the exquisite syeosis, which we call *Sycosis parasitaria*. The hairs are affected by the parasites introducing themselves into the follicle of the hair, and there setting up irritation and inflammation.

The cause of this affection is clearly shown by its vulgar name, "barber's itch." Usually the barber transports the sporæ of *Trichophyton tonsurans* from one face to another, and we believe more easily through the brush used to spread the lather. The wet brush catches up mycelium spores very easily, and offers also a ground of vegetation on account of the humidity; and this is the cause of the contagion.

It is advisable for people who are shaved in barbers' shops, to have their own soap, eup, and brush, and thus avoid the possibility of inoculation. The razor is frequently washed and passed on the strop before being used again, and can not very easily retain parts of the parasite.

Sycosis non-parasitaria or *Acne mentagra*, has also been referred to the barber's itch, but in this case the barber has nothing to do with it. It is a folliculitis of the beard, an

inflammatory affection of the hair follicles, not contagious, and of a chronic course. It is characterized by the presence of nodules and pustules, which are perforated by the hair, affecting more commonly the face covered with beard, and rarely the other hairy parts of the body. The base of the pustules is infiltrated and hard, forming a kind of tubercle in the depth of the skin, and on the surface they are covered with dirty, thick crusts. In old cases we find scars where hair follicles have been destroyed by suppuration. When we remove the crust, we find that the pustule has formed a kind of a hole, having the hair in the centre. Sometimes the hair is not perceptible; but with the point of the forceps it can be found and taken out as a long stump, covered with its hydropic membranes. At other times the hair grows just into the epidermis; causing irritation and inflammation. Burning, and at times painful or itching sensations accompany the disease.

The anatomo-pathological alterations, as described by G. Wertheim, are the epidermic membranes of the root of the hair suffused with serum, and the papillary layer inflamed and infiltrated, forming around the follicle a hole containing pus. In many follicles he found, together with the old hair, a new one, and by the presence of both hairs in one follicle he would explain the consequent irritation and inflammation of this organ.

Robinson maintained that the affection is primarily a perifolliculitis, an inflammation around the follicle, and only later the follicle and its sheath would be involved, when the pus and the transuded serum find their way into these structures.

The cause of sycosis sometimes has been found in catarrh of the mucous membrane of the nose. The secretion from the nose running on the superior lip causes inflammation and eczema of the skin, and the process, spreading into the hair follicles, inflames the follicles of the hair, with resulting pustules. For the other parts of the face, eczema very often

preceded the syeosis, and the eezema is the only eause of this affection. In other eases we ean not find any reasonable eause, either in the locality or in the general system of the individual. The opinion that a bad razor might be a eausal instrument of syeosis is diffieult to understand, when we find syeosis in individuals who never had been shaved.

Shaving is very servieeable in the treatment of eezema and syeosis of the bearded parts of the faee, beeause when the hairs are removed we can easily apply the different remedies direetly to the skin. In syeosis it is neeessary to shave every other day, but in the places where there are many pustules it is neeessary to epilate. By removing with the foreeps the hair which has beeome a foreign body in the follielle, the inflammatory symptoms readily subside.

It is proper to understand that, before shaving or epilating the faee, the erusts must be taken off by means of inunctions with oily substañees. The pustules must be opened with a small bistouri, and all the eontents diseharged. The surfaee is covered with Unguentum diaehylon, spread on a pieee of muslin, and ehanged twiee a day. The use of Wilkinson's Unguent has been found of great benefit in hastening the reeovery. Washing with fluid soap of glycerine, with mild aleoholie solutions of earbolie or salicylic acid, helps a good deal in the treatment of this obstinate affection.

EYEBROWS AND EYELASHES.

The elder Pliny believed that a part of the soul resided in the eyebrows. This is, of eourse, a mere faney; but we must agree with Lavater that the eyebrows eontribute a great deal to the expression of the faee, and are the least equivoeal interpreters of the internal feeling. Pride, jealousy, and firmness of eharaeter are frequently expressed by the eyebrows. In women the eyebrows, from being more soft and delieate, are more easily moved than in men; hence they express in the former more fully the internal feeling

of serenity or chagrin, of intelligence or stupidity, of sweetness or irascibility, the iris of peace or the bended bow of war, the test of dislike or the sign of affection.

The eyebrows are commonly of a darker shade than the hair of the head, a circumstance more remarkable in those who have light-colored hair. Very light eyebrows impart to the countenance a sort of babyish appearance, which detracts somewhat from the influence of the most beautiful features or the finest eyes. In light eyebrows, also, the hair is usually less in quantity than in the dark—a reason for some ladies seeking to add more color by artificial means.

The eyebrows sometimes are affected by Alopecia areata in the same way as the hair. In one case under our treatment Alopecia areata had produced baldness of about half of the head, and half of the eyebrow of the same side was completely missing. Chronic eczema of the face is very frequently the cause of the falling away of the eyebrows.

For darkening the eyebrows we find recommended the following wash: Dissolve in one ounce of distilled water one drachm of sulphate of iron; add one ounce of gum-water and a tea-spoonful of *eau de Cologne*. It is necessary to wet the eyebrows with a little tincture of galls, and afterwards the wash is to be applied with a camel's-hair pencil. A paste can be also prepared by taking walnuts, frankincense, resin, and mastic in equal parts. Burn all on clear red-hot charcoal, and receive the fumes into a funnel. A very fine black powder, slightly perfumed, will adhere to the walls of the funnel. The lamp-black thus obtained is mixed with a little oil of myrtle in a leaden mortar, and is applied for darkening the eyebrows. The eyebrows, *Regio superciliaris*, are very frequently the seat of eczema, *Eczema superciliaris*, which may sometimes be produced by irritant pastes used for staining the eyebrows. Although the eczema remains for a long time as a vesicular, red, or squamous one, it is very often capable of producing sub-epidermic abscess, or pustules, with all the symptoms of sycosis.

EYELASHES.

The row of hairs at the edge of the eyelids, besides offering a protection to the function of the eyes, are of great account for the regularity of the physiognomy, so that when one has no eyelashes we perceive an irregularity in his features which amounts to ugliness. Abundant eyelashes in a woman, by projecting a shadow on the inferior eyelids, give an expression to the eye which is particularly admired. Abundant eyelashes are found among the Circassian women, and it is stated that the mothers used to cut off the points of the eyelashes in their daughters so as to increase their growing. The cause of the loss of the eyelashes is especially eczema, which in young people affects the eyelid, known under the different names of *Eczema ciliaris* and *Blepharitis ciliaris*. It very seldom remains as an eczema; more often it is changed in a blepharoadenitis, an inflammation of the glands of Meybom. Like eczema of the other parts of the body, it is covered with hair. The inflammatory process, which is at first only superficial, extends into the hair follicles, and produces the same symptoms. The edges of the lids appear red, swollen, and covered with yellowish crusts, and the eyelashes are glued together in bunches. When this affection lasts a long time it may result in permanent loss of the lashes. Area Celsi affects the eyelashes, too, and like the eyebrows, they fall off entirely. In two cases under our observation the lashes came back; in other cases they were permanently lost.

NAILS.

A well-grown and symmetrically formed nail is not without its beauty; but like the hands, according to the kind of occupation, it is subject to a variety of vicissitudes. The shape of the nails depends principally on the attention bestowed upon them in the act of cutting or trimming them. When they are kept too short, the nail becomes gradually detached from the finger, and grows shorter and shorter

till it becomes deformed. With those who have contracted the disgusting habit of biting their nails, this happens more particularly. The nails ought to be cut down no lower than the top of the fingers in a uniform circular manner. But the nails of the toes must be cut nearly square, so as to prevent the ingrowing nails. The nail at the root has a whitish crescent, which is partly covered with the cuticle. Sometimes the nails are covered too much with it, and when such is the case, this excrescence alters the form of the nail and makes it appear shorter. This must be removed with a sharp penknife. To preserve the nails, the hands and the fingers must be well lathered, and washed with the aid of a hand or nail brush. When the nails are not smooth, and not of fine color, they can be rubbed with a powder composed of equal parts of cinnabar and emery, and afterwards with oil of bitter almonds. The beauty of the nails consists in having them of well-proportioned size and length, curved from side to side, transparent, and of a light-red color; their surface should be smooth and polished, and the roots apparent.

The health of the finger-nails can be disturbed by many affections, some of which are connected with the condition of the skin, and others are peculiar to the nail.

The nail can become hypertrophic. The ingrowing of the nail can be considered as a hypertrophic condition of the edges of the nail, which being too large enter into the folds of the skin, forming the bed of the nail, and thus produce pain and inflammation—a condition which is called *Paronychia*. The nails at other times are hardened and hypertrophic in all their structure, so as to resemble a kind of ball or hook, which condition we call *Onychogryphosis*. Descriptions of this affection were given by Hippocrates, Dioscorides, and other ancient writers, and recently by Rokitsansky, Simon, Frank, Fuchs, and others. When the nail shows these alterations, it is not smooth and brilliant, but is rough, and has on its surface deep depressions following the

direction of the fibres. The color is yellowish brown; the elasticity is gone. It is either too soft or too hard, and breaks easily. The affection may be limited to one finger, or it may attack all of them.

The anatomico-pathological alterations in the nail proper are of no especial interest. They consist chiefly in an induration or hypertrophy of its normal structures; but when the *matrix unguæ* is the affected part, its changes are worthy of study. Over the superior surface of the terminal phalanges are found the ordinary papillæ of the skin, upon which rest the flattened cells of the mucous layer, and upon this layer are found the aggregated epidermic cells which form the nail proper. Hence, to have a hypertrophy of the nail, there must first be a hypertrophy of the papillæ. The papillæ become enlarged and hypertrophic; the epidermic elements increase in size and number under the nail-plate, and form thus a cushion which lifts the nail from its bed. A similar process is found in ichthyosis, in which there is an enormous increase in the papillæ, and consequently the rapid increase of the epidermic cells. Ichthyosis may, indeed, cause the Onychogryphosis.

Causes of hypertrophy of the nails, as of every other deformity, can be found in a hereditary condition. When acquired, any trauma, by injuring the matrix of the nail, can be the cause of its abnormal growth. A continuous pressure produces hypertrophy of the nail, in the same way that corns are produced in the skin exposed to this injury. Every process in the skin capable of producing exudation and infiltration in the papillary layer can be the cause of the hypertrophy of the nails, as we see in chronic eczema, psoriasis, Pityriasis rubra, Lichen exudativus ruber, ichthyosis, Elephantiasis Græcorum (Lepra), and syphilis. These processes affect the *matrix unguæ* and its papillæ, producing irregular epidermic accumulations, and consequently hypertrophy of the nail. An acute process can not cause these troubles, but only a chronic one. In scarlatina, for instance, the nails

may fall off; and in erysipelas a paronychia is produced, with loss of the nail. In many diseases of the general system the nails show some alterations; as in Typhus exanthematicus, in measles, in puerperal fevers, in rheumatic attacks of the joints, we see the nails get dry, break easily, and afterward grow irregularly.

In syphilis the nails very often show alterations in their color and in their elasticity, so that very frequently they are friable. In some cases of syphilis the papillary layer forming the bed of the nail is affected and infiltrated, causing the alteration of the nails themselves.

The alteration of the nail very often begins in the lunula; but sometimes it begins on the edges, and goes on very slowly for months. The altered nail does not go back to its normal condition, but a normal nail grows again from the matrix, and the old abnormal piece is pushed in front; and in this case a line of demarkation is perceptible between the new-growing nail and the abnormal piece, as in psoriasis, in eezema, and in syphilis.

Sometimes the nail becomes broken at its free edge; at other times a fissure forms throughout its long axis and deep down into the bed of the nail, producing pain and sometimes preventing the use of the hands. The nail sometimes becomes atrophic, turbid, scales off, and almost disappears, from causes which at other times would produce just the opposite results. In consequence, the sense of touch is considerably diminished. In the toes, when the nails are irregularly hypertrophic, the pressure of the shoes causes pain, the edges press into the folds of the skin, and produce inflammation and paronychia, resulting in granulations, which are both painful and obstinate as regards treatment.

When paronychia is present, the invading part of the nail must be removed by cutting it away; the granulations must be cauterized with nitrate of silver or a strong solution of perchloride of iron. If the body of the nail be hypertrophic, it may either be scraped off or entirely removed.

In the cases of onychia produced by syphilis, it is necessary to combine the general treatment with the local application. Emplastrum hydrargyri applied on the nail is the best means of reducing the alteration.

In cases of alterations in the nail from eczema, psoriasis, and ichthyosis, local applications—such as solution of caustic potash, green soap, diachylon ointment, tar, etc.—are of great value. They must be made directly to the matrix of the nail. Flexible rubber, by retaining the perspiration and thus macerating the epidermis, facilitates the removal of the old nail, and promotes the growth of the new one. The rubber must be black, and may be used either in the form of gloves or small caps, which must cover the affected part.

CHAPTER XVIII.

PARASITES OF THE SKIN.

THE skin, exposed to the air, very often affords good ground for the development of parasites, which produce several affections, grouped in the class of parasitary eruptions, which have been already mentioned. The parasites belong to both the animal and the vegetable kingdom, and they are the efficient cause and the factors of the symptoms of the affection.

The animal parasites, which, on the human skin more frequently and in a typical way, produce diseases, must be divided into those which find their habitation and their food in the skin (*Dermatozoa*) and those which find only their nutrition from the skin, having their habitation in the hair or in the clothes (*Epizoa*).

The first class includes :

- a. Acarus of the scabies, *Acarus scabiei*.
- b. Acarus of the follicles, *Acarus folliculorum*.

- c. Sand-flea, *Pulex penetrans*.
- d. Guinea-worm, *Filaria medinensis*.
- e. Harvest-mite, *Leptus Autumnalis*.
- f. Gad-fly, *Æstrus bovis*.

Others belonging to the domestic animals, as the *Dermatonyssus avium*, and some kinds of *Dermatodictes* and *Symbiotes*, are found only occasionally.

To the second class are referred:

- a. The louse.
 - 1. Head-louse, *Pediculi capitis*.
 - 2. Crab-louse, *Pediculi pubis*.
 - 3. Body-louse, *Pediculi vestimentorum*.
- b. Flea, *Pulex irritans*.
- c. Bed-bug, *Cimex lectuarius*.
- d. Mosquito or gnat, *Culex pipiens*.

ACARUS SCABIEI.

Called also *Sarcoptes scabiei* and *Sarcoptes hominis*, is a minute insect, barely visible to the naked eye; has a yellowish, rounded body, which produces that complication of symptoms known as scabies, or itch. The female acari are frequently the cause of cutaneous lesions, while the male is rarely encountered, and probably has not much part in the eruptions.

The adult female, seen under the microscope, has a rounded, oblong body like a turtle, convex on the back and flat on its belly, marked with some depressions on each side, and some undulations on the ventral surface. On the back the acarus presents a kind of scales and several acuminate spines disposed in rows. The small head is closely set in the body, with a complex structure of feelers and mandibles, with three small hairs at each side (Fig. 1). The legs are conspicuous and eight in number, articulated; four anteriorly and four posteriorly. The four front legs are short and conical, provided with stalked, cup-shaped suckers and some small hairs. The posterior legs, arising from the posterior

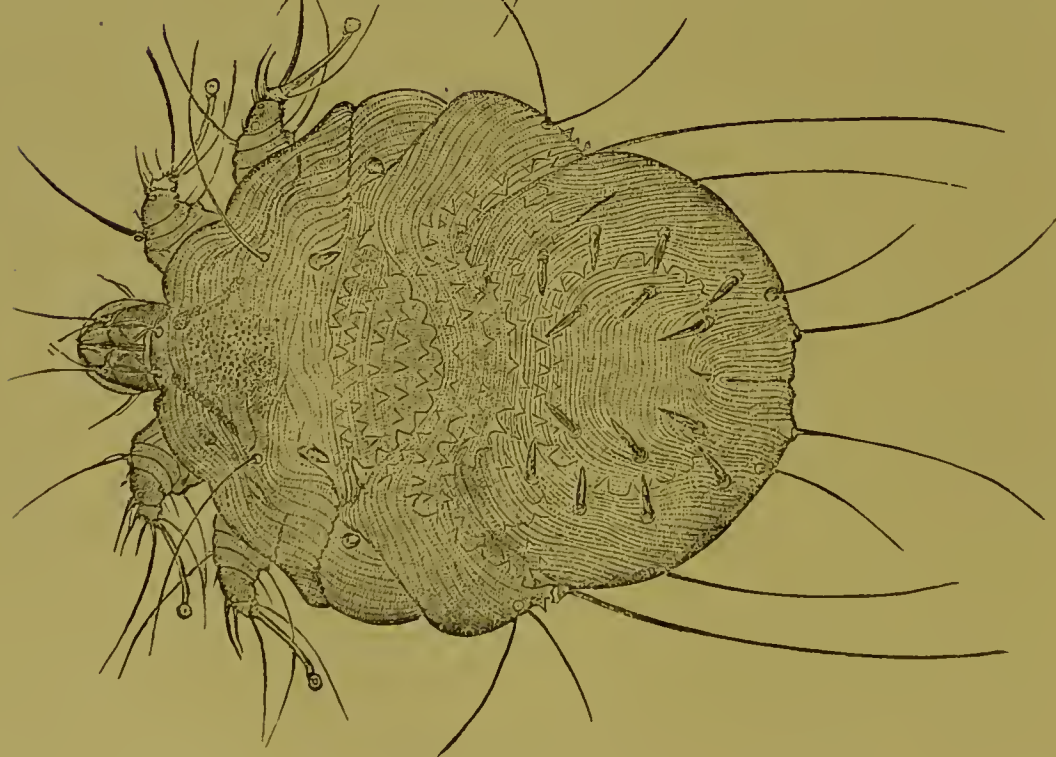


FIG. 1. BACK VIEW.

THE ITCH-MITE (FEMALE).
[Acarus Scabiei.]

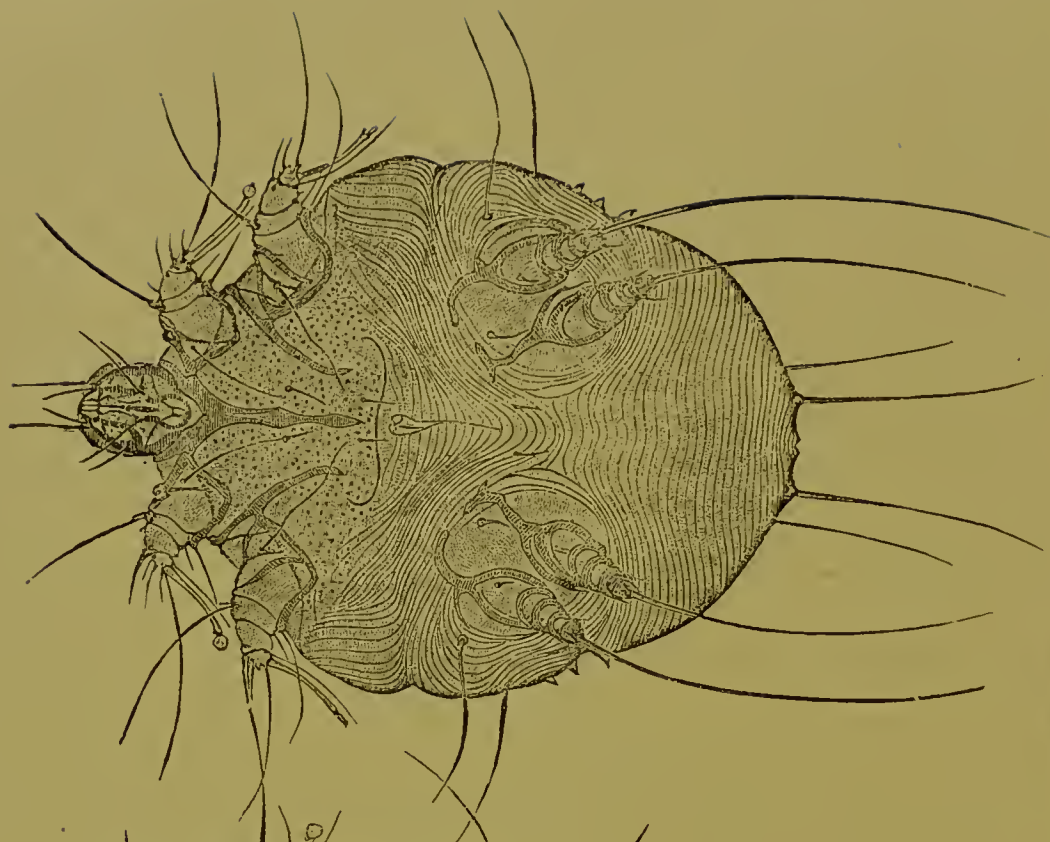


FIG. 2. ANTERIOR VIEW.

half of the body, are less bulky than the anterior, provided in the female with a long bristle; but in the male only two have the bristle.

The female acarus is very much larger than the male, almost twice the size, and the organs of generation are conspicuously marked. The larvæ are easily recognized, having only six legs, four anterior and two posterior. The male acarus is found under epidermic scales in little holes which they dig for themselves, or hidden in crusts always on the surface of the epidermis. The female finds her way to the succulent layer of the epidermis, boring with the mandibles through the cuticle, and insinuating herself under the horny layer. Slowly, slowly she bores; always making a furrow under the cuticle, where she lays her eggs. The furrow is of various lengths, seldom straight, ordinarily cracked, and appearing as a whitish line, elevated above the epidermis. The most prominent end of the furrow is that where the acarus is, and the other prominent point is where it first entered. In the furrow are the eggs, in different conditions of development. Thus near the acarus there is only a homogeneous mass, and near the other end we see the larvæ already developed. Scattered throughout the furrow are small, dark points, which are the fecal matter of the acarus. The burrows are found preferably on the skin of the hands, on the surface of the fingers, on the wrist, and on the penis; and in women on the breast. The acarus can be easily caught by breaking, with a sharp needle, the epidermis which overlies the burrow at the end where the acarus is lodged, and the acarus comes out on the point of the instrument as a roundish vesicle, barely perceptible.

Scabies is nothing else than an artificial eczema, brought about by the exercise of the vital functions of the insect, together with the scratching by the patient. The amount of cutaneous disturbance varies considerably according to the quality and the sensitiveness of the skin of the subject. In some individuals, with a few burrows we find a great deal

of eruption; while in others, with an enormous number of burrows, very little eruption is remarked.

The acarus is not confined to man, but is also found in animals. Fürstemberg found acari on the skin of the horse, of the lion, of the ape; and Hebra found them on camels and Egyptian sheep, and he refers to many cases of scabies among the men attending the menagerie in Schönbrunn. For this reason he entertains the same opinion as Gerlach, that the acarus of man and of animals is the same insect, varying, perhaps, only in its development on account of its different nutrition and of its different environment. The acarus in man lives under the epidermis, near the Stratum mucosum, and does not leave its place, some larvæ only being found together upon the skin and covered by a crust or epidermic scales. The small acari, as soon as they reach a certain degree of development, leave the old burrow to find a habitation for themselves. Very often a tender skin, when irritated by the presence of the acarus, presents an urticarial eruption, which in former times was believed to be the consequence of an *Acrimonia sanguinis*. Most of the eruptions are found in places where the skin is continually under a pressure; consequently the gluteal regions are very often full of excoriations and eruptions in those who are obliged by occupation to sit down a great deal, as shoemakers, tailors, etc. The eruption is also prevalent where clothing is nearest the skin, or where pressure is made by instruments; as for instance, a truss.

The greatest contingent of those who are affected with scabies is found among people who sleep two in a bed, or among those who are obliged to work in crowded factories. We do not believe that the kind of occupation predisposes to the scabies, but the way of living, and especially of sleeping together, is the principal cause of getting scabies. Hebra remarked that workingmen who obtained board and lodging from their employers, and who slept alone in small beds, furnished very few cases of scabies.

Women are not so frequently affected with scabies as men, the proportion being, according to F. Hebra, as one to seven. It is the opinion of Gerlach, Anbi, Bourguignon, and Burchardt that the *acarus* is a nocturnal prowler, who roams about in the night, and in the day-time returns to its burrows. But the observation that the female *acarus* is found always at the end of the furrow, with the tendency to bore further, excludes the possibility that the *acarus* comes out from its furrow. The small *acari* very probably, as soon as they have reached some degree of development, come out from their furrow, and go around on the skin. The *acari* are much more active when warm; therefore, in bed, at a warmer temperature, the itching sensation increases. The patients scratch themselves much more in the night-time, and scratch where the furrows are. The act of scratching breaks the furrows open, and the *acari*, driven from their habitation, wander about upon the skin, finding other places on the same individual, or on another individual who may be in contact with him. The eggs and small *acari* remain in the sheets and in the bed-clothing, and when another uses the bed he is liable to get the scabies. According to Professor Duhring, scabies is not so prevalent in the United States as upon the other side of the ocean, and it is very variable in the different cities, with more frequency in the sea-ports than in the inland towns. White, of Boston, reports 139 cases among 5,000 consecutive cases of skin diseases as met with at the outdoor department of the Massachusetts General Hospital. Wigglesworth, at the Dispensary for Skin Diseases, Boston, records but 13 cases out of 1,339 consecutive cases of skin diseases. In New York the disease is encountered more frequently. Bulkley gives 62 cases in 1,617 cases of skin diseases as observed in dispensary practice. In Philadelphia, at the Dispensary for Skin Diseases, there were but 9 cases out of 1,267 consecutive cases of skin disease; while at the clinic for cutaneous diseases at the hospital of the Uni-

versity of Pennsylvania, only three cases were encountered among 1,205 consecutive cases of skin diseases. In Cincinnati in the last two years we have registered in our private practice 34 cases of scabies, a number which does not represent all of the cases, because only the name of the family is registered, even when several members have been affected. According to our opinion, the spreading of scabies seems to be due, in some cases, to children in the schools. We found several times old scabies in children and slight scabies in their parents, showing that the children were the first attacked.

Children in public schools should be carefully examined for scabies, especially when scratching is noticed. When the disease exists, isolation should be insisted upon, and children with scabies should not be allowed to come into contact with other children.

From what has been said, it will be seen that the treatment for scabies must be local. The epidermis which protects the acarus must be removed, and the medicine brought directly into contact with the parasite.

In a few hours scabies can be cured. The patient is rubbed with green soap all over his body, with the exception of the face, and then is put into a warm bath for half an hour. In this way the epidermis is dissolved and softened. Then he is strongly rubbed with Vlemineckx solution, according to the following formula:

R.	Calcis vivæ,	100.0.
	Aquæ font.,	q. s.
Ad	perfectam extinctionem ut fiat pulvis æquabilis.	Adde
	Sulphuris citrini,	200.0.
	Coque cum aqua fontis,	2000.0.
	Ad remanentiam,	1200.0.
	Filtra.	

When rubbed, the patient is put again into the bath, and then is completely washed under a shower-bath. Instead of using Vlemineckx solution, Helmerich's salve can be applied, which consists of two parts flowers of sulphur, one part

subcarbonate of potash, and eight parts of hog's-grease; only it must remain longer on the skin.

This kind of treatment can not be applied in every case, because it irritates the skin and is liable to produce eczema. In patients who have many excoriations and pustules, this method would be painful, and in that case we prefer a slower treatment, with remedies capable of curing the excoriations, quieting the itching sensation, and at the same time killing the acarus.

For this purpose the Unguentum Wilkinson, modified by Hebra, is very serviceable. Its formula is as follows:

R. Florum sulphuris.	
Olei fagi,	āā 20.0.
Sapon. virid.	
Axung. porcin.,	āā 40.0.
Cretæ alb. pulv.,	15.0.

By the action of green soap the epidermis is dissolved; by the prepared chalk the burrows are broken; tar keeps the sulphur in contact with the skin, and this last mentioned kills the parasite. The patient is rubbed in the morning and in the evening for two or three days, and then he must wear woolen clothes, and must not wash himself until brownish epidermic scales are detached, and the epidermis beneath is healthy. When the patient washes himself soon after the last inunction, the new epidermis is dissolved by the soap, and the skin is irritated, resulting in obstinate eczema.

The irritation of the skin from Wilkinson's ointment, when properly used, is less than that which arises from other compound formulas used for this affection.

Styrax can be used alone to treat scabies, but we prefer to mix it in the Wilkinson's salve, instead of oleum fagi. Kaposi recommends the following:

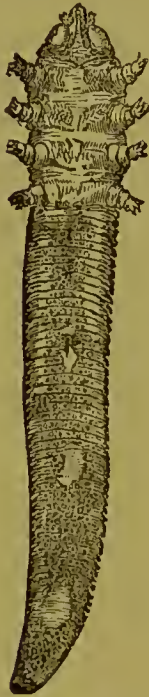
R. Naphtali,	15.0.
Pulv. cretæ alb.,	10.0.
Sapon. virid.,	50.0.
Axung porc.,	100.0.

We tried coal-oil alone, but relapses frequently occurred, as the burrows are not thoroughly opened up, and some eggs or larvæ may escape destruction.

We always advise the patient to fumigate with sulphur vapors their wearing apparel, bed-clothing, and mattress, so as to remove any egg or larvæ which may remain and be capable of occasioning a relapse.

ACARUS FOLLICULORUM.

This minute animal was found first by G. Simon in 1842, while studying acne and the contents of the hair follicles and



DEMODEX FOLLICULORUM.

(300 diameters.)

VENTRAL SURFACE (AFTER SIMON).

sebaceous glands. From his name it was also called *Simonea folliculorum* by P. Gervais, *Steatozoon folliculorum* by E. Wilson, *Demodex folliculorum* by Owen. It is a microscopical insect, varying in length from $\frac{1}{12}$ ''' to $\frac{1}{6}$ ''', and has an elongated, rounded worm-like form made up of a head, thorax, and long abdomen. From the thorax project eight short, stout, conical legs, which in the larvæ are six in number. This insect is found in the sebaceous glands, and in the hair follicles in people affected with seborrhœa, and also in normal condition, especially on the face, nose, lips, forehead, cheeks, and near the duct of the ear. The insect is found with the head down in the sebaceous gland, and the tail is in the excretory duct. It is very

easy to find the acari, by squeezing the sebaceous gland. If the contents are diluted with some oil it may be seen under the microscope.

Most authors believe that the acarus of the follicles has no bad influence upon the skin of man, and that it is not the cause of acne, or of the comedo, or of seborrhœa. However, it must be considered as a parasitic element. Gruby inoculated *Acari folliculorum* upon a dog, and after two years every sebaceous and hair follicle was taken up by this parasite, and the dog lost a good deal of its hair. Sparks published his observations of universal acariasis on three dogs, which all showed a loss of hair, and an acne-like eruption, and each one had an innumerable quantity of *Acari folliculorum*, and died from marasmus. He attributed the cause of their death to the parasitic affection.

We do not believe this acarus to be so innocent an inhabitant of human follicles; but we do believe that many cases of folliculitis are due to the presence of this intruder in the sebaceous glands. Majocchi referred to some cases of blepharoadenitis, with very obstinate symptoms, in which, when the contents of the glands were examined, numerous acari were found, and in which recovery could only be brought about by squeezing out these contents.

SAND-FLEA,

Pulex penetrans—called also chigœ, chigger, and jigger—is found in Central and South America. Paraguay, Brazil, Mexico, and even Florida, are said to be the habitat of this insect. It affects men, mice, and rats, looks like an ordinary flea, and has a proboscis as long as its body, by means of which it burrows into the skin. The burrowing is not noticed much; but in a few days the skin is inflamed and swollen because of the growth of the parasite. Sometimes lymphangioitis and abscesses result. The females do the mischief. They affect chiefly the toes, and deposit their eggs about the nails. The treatment, as practiced by the natives, is to dig out the insect with a red-hot needle, and then treat the wound with tobacco. Various essential oils are used about the feet as preventives.

GUINEA-WORM,

Filaria Medinensis, or *dracunculus*, according to Pruner, exists not only in the countries mentioned by Avicenna—Medina, Egypt, and Chorassan—but also in Kardofan, Sennar, and Darfur, in the west of Africa, Guinea, Senegal, in India, in Persia, and along the Arabian coast. In Europe and America the few cases remarked were always imported. The seat of the parasite is in the connective tissue, under the skin, between the muscles, especially in the lower extremities. The animal is a worm, tapering in contour, of milk-white color, from a few inches to several feet in length. The head is provided with four hooks, and the tail is thin and ends in a point. Pain, limited tumor, abscesses, and the end of the worm perceptible, are the most pronounced symptoms. Sometimes, on the place where the filaria is, there appears a kind of furuncle, having in the middle a necrotic place, which, when closely observed, shows the tail of the worm. At other times an abscess is formed, which, when opened, shows the animal. The inflammatory process is due to the reaction for the elimination of the parasite. Animals are also affected by filaria, as horses, dogs, cattle, etc. It is believed that when persons walk barefoot upon the sands, and that when bathing is indulged in in swampy districts, the parasite penetrates the skin; but it is hardly probable that an animal with so little movement could do this. It is also supposed that the parasite is taken into the system with certain kinds of drinking water, in this way resembling somewhat trichinae and cestodes. Professor Gustav Lang had occasion to study this parasite in the person of a Tartar who had traveled a good deal in the Orient. The patient was treated in Pesth (Hungary) one year after leaving Bokhara.

The treatment consists in extracting the parasite by rolling first the tail and then the whole worm upon a small stick or rod, and thus gradually pulling it out. This procedure may take from ten to fifteen hours. If the worm be

broken in this process, myriads of young ones are set free and burrow again into the flesh, even more deeply than before, and sufficiently to cause gangrene. When the insect is broken it is better to make a free incision, scrape out the wound, and cauterize with strong solution of either carbolic acid or chloride of iron, so as to destroy the larvæ.

LEPTUS AUTUMNALIS,

Erntmilbe (German), harvest-mite, harvest-bug, seed-tick (English), is a small insect barely visible to the naked eye, brick-red colored, with a pyriform body, provided with six legs. It is not reproduced upon the human body, lives only a few days, and then dies. It insinuates itself into the skin, but does not entirely bury itself. It prefers children, affecting especially their head and axillæ, and by the irritation produces papulæ. One kind of leptus is very common along the Mississippi



LEPTUS AUTUMNALIS.

River. It is met with in the Summer and Autumn in the corn-fields, upon low bushes, in the grass, and in swampy places. The little mite encountered in New Jersey and Delaware is in all probability the same species. (Duhring.)

As this little mite can not live long on the human kind, so the exanthem produced from its presence is not obstinate, and lasts only a short time. The irritation subsides under bathing with a cold alcoholic solution. A salve containing some ethereal oil or balsam of Peru, or a little coal-oil, destroys this parasite.

GAD-FLY.

There are several species referred to the genus *Æstrus*. *Æstrus bovis* is the most common, and infests the human skin. There is probably no species *Æstrus hominis*. This

parasite not infrequently attacks man in Central and South America. The ova are deposited by the fly in the skin, and there form inflammatory pustules, with a central point or aperture, which discharges a sanious fluid. In the course of time the presence of the worm, grub, or maggot is discovered, which may be squeezed out or extracted.

The various exposed portions of the body are liable to be affected, especially the neck, back, and extremities. The fly very often deposits the ova unknown to the individual upon whom it alights.

EPIZOA.

Lice (*Pediculi*) belong to the parasitic insects, *Insecta ametabolica*, of the family of the *Pediculida*. They have no wings, and do not present any metamorphose, are provided with mandibles for biting the skin, and a kind of proboscis.

The pediculi are divided into three species—pediculi of the head, of the body, and of the pubis. The irritation produced on the skin by the presence of this vile insect is very annoying, and the eruptions are to be referred to an artificial eczema. This eczema, with the presence of the pediculi, gave rise to the idea of the existence of a dyserasia, which was called *Morbus pedicularis*, lousiness, *Lans sucht* (in German), *Phtheiriasis*. To-day no one believes in the existence of such a dyserasia; the pediculus irritating the skin is the cause of all the mischief. In ancient times it was believed that the louse lived in the depths of the skin in the pustules, and from time to time came out upon the surface. It was considered a real disease, and history furnishes many cases of people having died from that affection. Aristotle reported that the poet Alkman, and the tragedian Pherecydes, died from phtheiriasis; and Plato himself, it is said, died in this way. Livy refers to the fact that the death of Pleminius, the Roman legate to Locris, was due to phtheiriasis in the jail of Rome. The Emperor Arnulf, Honorius, king of the Vandals, and Scio, king of Denmark, died of the *Morbus*

pedicularis ; and the insects were so numerous that the bodies of these distinguished men were entirely covered. The disease was regarded as a punishment from God.

The first idea of treatment we find in Oribasius and in Paul of Ægina. They proposed the application of several resinous and balsamic remedies, and especially veratrum and Delphinium staphisagria, to kill the insects.

In the last century we find some authors speaking of the Morbus pedicularis, and Lorry assures us of the existence of this disease, which, however, did not cause the death of any person attacked. Plenck also speaks of a Morbus pedicularis in which lice came out from the nostrils, the eyes, the mouth, etc., which is nothing else than a repetition of the old fable. Rayérs, Bazin, Hardy, and many others, denied the existence of the Morbus pedicularis, retaining, however, the name *Prurigo pedicularis*, where the insects infest the skin. Dr. Alt, in 1824, published some observations, giving a new kind of louse, which he believed to be different from the others, and which he called *Pediculus tabescentium*. But it was proved that this pediculus was just the same as the *Pediculi vestimentorum*, and only three kinds are now known to science. Therefore, phtheiriasis, in the true meaning of the word, does not exist. Pediculi are only epizoa, which seek their nutrition from the skin, and have their habitation in the clothes or in the hair.

PEDICULUS CAPITIS.

This is found upon the scalp, and is of a grayish color. It is different from the other pediculi in having a larger thorax and a blackish color on the posterior linear margin. It has an elongated, oval shape, consisting of head, thorax, and abdomen, marked with seven defined angular notches. Six legs, similar in size and general features, strongly jointed, and armed with stout claws and hairs, project from the thorax. The head is of a rounded, acorn shape, protruding, armed with two hairy, five-jointed antennæ, and with prom-

inent eyes. The color of the body is an ashy-grayish white. The female is larger than the male. The ova, called commonly nits, are large, oval, whitish bodies, which are glued securely to the hair. They are found upon all portions of the head, their favorite seat being the occipital region. Lice are very prolific. One louse alone in six days can lay fifty eggs, which hatch in from three to eight days thereafter, and in eighteen days more, the young lice begin to lay ova, so that only one louse can in eight weeks produce five thousand offspring.

The results of the presence of these insects on the scalp are lesions, known as artificial eczema, consisting mostly of pustules, covered with hard, yellowish crusts, under which they find nutrition and shelter favorable to their development. Sometimes people, especially ladies, are ashamed to say that they have lice on their heads, and cover the head with false hair, leaving the insects undisturbed. In such cases an eruption of pustules and vesicles occurs on the forehead and the neck. The auriculæ frequently are the seat of Eczema impetiginosum, and the back of the neck, down as far as the shoulders, appears red, scratched, excoriated, with bleeding papules and pustules, mixed sometimes with furuncles. The cervical glands are swollen to the size of small walnuts, but not painful. The face looks pale, and the individual has a cachectic appearance.

The hairs are sometimes all stuck together with an enormous quantity of nits, and the skin at the root of the hair is covered with thick crusts, which, after being removed, show the excoriated derma. The louse irritates and wounds the skin with its mandibles and proboscis, which it introduces into the skin in order to draw the blood and the serum. The itching sensation is so severe that the patient is obliged to scratch very deeply. *Impetigo a pediculis* of the head is not found, only, among the lowest class of society, where care is wanted, but also among the rich. The mother or the attending nurse sees the crusts, and any

attempt to remove them produces pain and bleeding. The child cries, screams, and refuses to be combed, and so they leave the crusts under which the pediculi propagate undisturbed.

The treatment consists in killing the insects, destroying the nits, and then treating the eezema. For removing the insects, Unguentum Hydrargyri cinereum, decoctions of staphisagria, of sabadilla, etc., have been used, but coal-oil is by far the best remedy.

Coal-oil can be used alone, but on account of its disagreeable smell it is better to mix it in equal parts with olive-oil and some balsam of Peru, under the following formula:

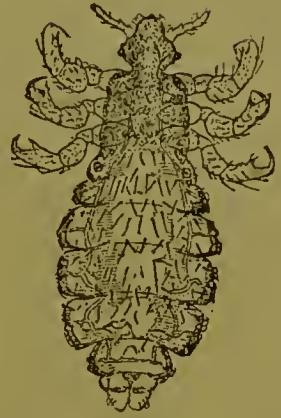
R.	Petrolei venal.,	pts. 100
	Olei olivar.,	" 50
	Balsam Peruv.,	" 10

Misce.

With this lotion the hair is wet three or four times a day, covering the head with a flannel cap. After twenty-four or forty-eight hours the pediculi and their nits are destroyed, and the crusts are entirely softened. At this point the head is carefully washed with soap and water, and the bodies of the pediculi, the nits, and the crusts are removed. It is not necessary to cut off the hair, which is inhuman, especially with women. The eezema heals up very easily, especially when helped with the several salves which we use for that purpose.

PEDICULI VESTIMENTORUM.

The body-louse, or clothes-louse, differs from the one above described by its size, being much larger. Its body is more elongated, the indentations are more marked, and



PEDICULUS CAPITIS.
(23 Diameters.)
FEMALE. DORSAL SURFACE.

furnished with hair; the legs, three on either side, are provided with heavy claws and numerous small hairs. The head protrudes in a rounded acorn shape, armed with two



PEDICULUS CORPORIS.
(20 Diameters.)
FEMALE. DORSAL SURFACE.

hairy, five-jointed antennæ, and prominent eyes. The color of the louse is a dirty-white or grayish. This kind of louse inhabits the clothes, which are immediately in contact with the skin. They hide themselves in the folds and beneath the seams, where they deposit their eggs. They go on the skin only to get their nutrition, and are never found on the head, which is affected by the other species. When the louse takes its nutrition from the skin it bores the epidermis and thrusts the head into the Malpighian

layer at an acute angle. The skin swells up into the form of urticarial wheals. The itching necessitates scratching by the subject, the finger-nails excoriate the top of the papules, and thus produce bleeding wounds; the blood coagulates, dries, and forms a dark-brown crust.

The skin lesions are found in the gluteal regions, around the waist and about the wrists; in places where the clothing is in closest contact with the skin the continuous scratching produces hemorrhagies underneath the epidermis, and these cause brownish pigmentation. Furuncles frequently result and produce lymphangioitis and abscesses, causing misery, despondency, apathy, and carelessness in regard to personal appearance.

The best treatment is to rub the whole body with coal-oil and wash with soap. The clothing must be boiled in a lixivial solution.

PEDICULUS PUBIS,

Crab-louse, *Phthirius inguinalis, pubis, morpio*, has for its habitat the pubis, but sometimes it infests the axillæ and sternal region, and is found in the male beard, eyebrows, and even the eyelashes. It is smaller than either the head-louse or the body-louse; is short, broad, flat, roundish or shield-shaped, with a large, fiddle-shaped head; with two stout, five-jointed antennæ; a pair of small eyes, and a short thorax, passing imperceptibly into the abdomen. From the sides of the thorax extend six jointed, hairy legs, provided with powerful claws. The margin of the abdomen is slightly indented, armed with eight stout, conical, prehensile feet, each with from four to ten bristles. The insect has a yellowish-gray color, more or less transparent. The female is larger than the male, and has a triangular shaped notch at the termination of the abdomen.



PEDICULUS PUBIS.
(20 Diameters.)
FEMALE. DORSAL SURFACE.

The crab-louse lives among the hair of the whole body with the exception of that of the head. It bites the skin and introduces its head into the excretory ducts of the sebaceous glands or into the follicle of the hair, grasping with its anterior feet the nearest hair. The eggs stick fast to the hair, and sometimes it is difficult to get rid of them on account of their tenacity.

When the Pediculi pubis have been present for a long time, papules are produced. The itching is not so intense as is the case when the other lice are present, but is very persistent. Chronic Pediculosis pubis produces artificial eczema. These pediculi are acquired by sleeping in the same bed with an affected person, or using the clothing of such a one.

The most popular way of getting rid of the crab-louse is

to use the Unguentum cinereum, which answers the purpose; but sometimes the Unguentum cinereum irritates the skin and produces a papular or a pustular eruption.

The mixture of coal-oil, olive-oil, and Balsam of Peru is very good, and does not expose to the danger of the eruption of the mercurial ointment. Three or four applications of this mixture are sufficient to see the insects dead and their nits dried. Wilkinson's ointment, by its antiparasitic action, is also applied with satisfactory results. The erythema consequent upon its application disappears very easily under baths and applications of Wilson's ointment.

THE FLEA.

The common flea, *Pulex irritans*, belongs to the class of dipterous insects, and is found all over the world; but it is more frequent and more injurious in the mild and hot climates.

The head of this small, reddish-brown insect is small, formed from one piece, with short palpa seated in an insinuation behind the eyes. The mouth contains a tongue formed like a bristle, and is covered by two inferior mandibles and two smaller superior. Two scales form the lips which conceal the proboscis. Three joints constitute the thorax, provided with six long legs for jumping. The female is much larger than the male. This pest infests the skin of several domestic animals and of man. The bite of the flea on the human skin produces a small hemorrhage in the superficial layers of the skin, surrounded by a hyperæmie halo. After some time the hyperæmia disappears, and the extravasation appears darker. In some places, where fleas are numerous, the individual shows a kind of real purpura, which was formerly called *Purpura pulicosa*. In the delicate skin of children the flea-bite produces a large urticarial wheal, which, after some time, disappears, leaving the mark of the extravasated blood. There is a possibility of confounding purpura with flea-bites.

THE BED-BUG,

Cimex lectularius, *Acanthia lectularia*, is another insect which is found in the beds about the joints, grooves, and crevices, and in the bedding and bed-clothes, about the seams and folds, in the cracks of old floors, walls, wall-paper, furniture, etc. It lives only upon human blood. It has a tenacious life, being able to live for a long period without food. It possesses a nauseous odor, noticeable especially when the insect is crushed. It exists almost universally; but, according to Küchenmeister, it is not found in South America, Australia, or in the Polynesian Islands.

The bite of the bed-bug produces on the place a large urticarial wheal the size of a split-pea, with a whitish centre, attaining sometimes to a considerable swelling. The sensation accompanying the bite is a slight pricking one, but in a few minutes it is followed by a considerable itching and burning sensation, like that of urticaria. The act of scratching causes excoriations. It is said that bed-bugs have a foe in the cockroach, and, according to Professor Riley, also in the two-spotted corsair (*Pirates biguttatus*), met with in beds infested with bed-bugs in Southern Illinois, Louisiana, Texas, California, and Mexico. (Duhring.)

The bites of bed-bugs are relieved by lotions containing alcohol, cologne-water, carbolic acid, vinegar, dilute acetic acid, corrosive sublimate, lead-water, or water of ammonia, sponged upon the parts. The best preventives against bugs in beds and other haunts are corrosive sublimate and pyrethrum powder.

THE MOSQUITO,

Culex pipiens, an insect common to almost every section of the world, is not unfrequently the cause of irritation upon the skin. In Summer many kinds of this insect are seen in the water near the rivers, and at night in myriads they infest the streets of the cities. Provided with a proboscis

which they introduce into the skin, they suck the blood, causing, according to the different sensitiveness of the skin, large urticarial wheals. In some parts of the South, the bites of mosquitoes cause pain, inflammation, œdema, and sometimes symptoms of fever.

Camphor-water diminishes the irritation of mosquito-bites, and on rubbing the skin with a camphor solution the mosquito does not bite.

VEGETABLE PARASITES

Belong to the class of the fungi, entirely separated from the algæ by the want of chlorophylla. By their constitution, fungi are not able to take and assimilate their elements from the inorganic kingdom, but they need organic substances already prepared. The discovery is due to Bassi and Balsamo, who, in 1835, while studying the Museardine, a disease of the silk-worms, found the cause in a fungus, which Balsamo called *Botrytis paradoxa*, but after a while it was called *Botrytis Bassiana*.*

This discovery suggested the idea that several contagious diseases of the skin of mankind could be produced by the presence of vegetable parasites.

The first disease of the head known from antiquity as contagious was favus. *Porrigio lupinosa* was examined by Schœnlein, who, in 1839, found the constituent elements of the fungi; and the fungus, in honor of the discoverer, was called *Achorion Schœnleini*.

In 1843 Gruby and Malmsten discovered a fungus in that disease described by Cazenave as *Herpes tonsurans*, *Tinea tonsdens* by Mahon, and *Ringworm* in England. In 1846 Eichsted described the fungus of the *Pityriasis versicolor*, and Gruby described a fungus in *Tinea decalvans* under the name of *Microsporon audouini*. Several other forms were also described, which were afterward denied to exist.

* Balsamo Gazette de Milan, 1835, quoted by Robin, Histoire Naturelle des Végétaux Parasites, etc., Paris, 1853.

The fungi were divided into two groups, one of which finds its nutrition in dead and rotten substances, and was called *Saprophytes*. The other group finds its nutrition in the living animals, to which were referred the true parasites.

The fungi result from a very simple organization of one-jointed cells, threads, and mycelium. The principal mass of the vegetable part of the fungus is called Thallus. The fructification parts present different appearances, which are made the basis of the classification of the fungi. *Penicillium crustaceum* is often taken as a typical illustration to show the organs of fructification. From the principal mass of the mycelium a horizontal branch extends, which is divided into two basidien. Each one of these is surmounted with three conical sterigms, on which are disposed rows of round cells, spores, which are the fruit and the seed of the fungus. When the spores fall off on favorable ground, they develop mycelium again, and produce new fungi. In other kinds of fungi propagation takes place in a different way. From the thallus arises a kind of round, large cell, which contains the spores. The round cell containing spores is a conidium. This is the method of propagation followed by the fungus of favus. It was believed that the several forms of fungi producing skin eruptions were nothing else than the transformation of one species of fungus into another, on account of the different ground and of the different condition in which it is vegetating. In opposition to the negative results of Köbner, there are the results of Pick, who obtained rings of *Herpes tonsurans* by inoculating the fungus of the mold, *Penicillium*, and the experiments of Pick, Köbner, and Peyritsch, who obtained rings of *Herpes tonsurans* by the application on the skin of the germs of favus under wet clothes; and another experiment in which favus put to vegetate on vegetable matter produced mold. All these results appear to favor the opinion of F. Hebra, that the several species of fungi may be nothing else than a transformation of the aspergillus or of the penicillum.

But on consideration of the way in which such results were obtained, there can be no proof of the theory, it being impossible to exclude the possibility that some spores of the other fungus were mixed with the ones used, and that spores of *Mucor mucedo* produced the results observed while the others were lost.

According to the studies of Hallier the fungi of the parasitary dermatosis seem to find their origin in the fungi of the mold, and are of the same kind as the Schizomycetes. But this opinion was demonstrated botanically to be entirely incorrect, and pathology supports the justness of the demonstration. The opinion of Ferd. Cohn is, that each group of these micro-organisms is distinct, and the fungi of dermatosis have nothing to do with the others, and each one is an entity by itself, capable of producing a separate affection. The clinical characters and the resulting symptoms on the skin by the presence of the parasite are different in the different affections. The skin diseases produced by the presence of fungi vegetating on the skin are called *Dermatomyecosis*. The pathologic alterations produced on the skin are of an inflammatory nature, redness, vesicles, pustules, in circumscribed roundish spots, and as a consequence the degeneration and the atrophy of the hair, nails, the follicles, and the same corium in the form of a cicatricial atrophy. Further complications may be also produced by lymphangioitis, abscesses, and sometimes by the swelling of the lymphatic glands.

The vegetable parasites affecting the skin vegetate in the epidermic layers, and in the epidermic appendages, hair, and nails. The effect of the parasitary fungi on the skin is only a local and mechanical one. Their elements, especially the mycelium, compress the cells of the epidermis and their layers, separating one from the other, and altering in this way their nutrition. The fungi absorb the nutritive fluid of the epidermic cells, which become dry, break, and die.

The circumstances which make the epidermis a favorite

ground for the vegetation of the fungi are all those which favor the development of mold, dampness, warmth, want of air, and dirt. Herpes tonsurans of the body is easily encountered in persons living in damp and badly ventilated dwellings, when their clothes are moldy. During a hydrotherapie treatment when an individual remains a long time in wet clothes or in vapor-baths, we frequently see the development of Herpes tonsurans. This is no proof that Trichophyton tonsurans may be a transformation of the Mueor muceado, but it strengthens this opinion when we see this fungus developed under the identical circumstances on the skin.

Contagion is one of the strongest incitements to the propagation of fungi. Parasitary affections are contagious, but not in so high a degree as when there are animal parasites. Favus and Herpes tonsurans are very contagious, but this is not the case with the Microsporon furfur, which is seldom transported, producing Pityriasis versicolor.

It is also necessary to consider the conditions of the general health, which makes the skin a more propitious ground for the development of fungi. In serofulous subjects, and among marantic people we encounter more frequently the fungi vegetating on the skin than we do in healthy and strong individuals.

The most interesting vegetable parasitary affection of the skin is *favus*, produced by *Achorion Schœnleinii*, Herpes tonsurans by the *Trichophyton tonsurans*, Malmsten and Pityriasis versicolor, by the *Microsporon furfur*.

ACHORION SCHŒNLEINII.

This fungus produces the disease called *Favus*, or *Tinea favosa* which was known to the most ancient authors. Its nature, however, has been known only since the discovery of Schœnlein, who proved its parasitary nature, demonstrating that the fungus is an essential part of this disease. The therapeutical studies of Hebra, Bœrensprung, Bazin, Köbner, Gudden, Pick, Neumann and others, and, for the

botanic part, of Hallier, Hoffman, Zürn, etc., have placed the treatment of this disease on a rational basis, and this affection, which was once considered almost incurable, is now easily cured.

Favus affects the epidermic appendages, the hair, and the nail, spreading on the epidermis. The scalp is the most ordinarily affected by favus, and when we have occasion to examine one with this disease, we usually find the head full of yellowish, dirty, dry crusts, resembling sulphur; and we can not readily discover the elementary form belonging to favus. But if oil or poultices are used to soften the crusts, and the head is then washed, we have a clear surface. In a few days the affected portions are covered with white scales, and after the third week small, yellowish, dry crusts, like sulphur, of the size of a pin head, and in the form of a little dish appear, each one pierced by a single hair. This is the favus, or scutulum. A few days later this dish has grown to the size of a lentil, and compresses the surrounding epidermis; the hair remains always in the middle point, which appears much more depressed, forming the *Favus urceolaris*. With a spatula the favus can be removed. It has a convex form, is incuneated into the Malpighian layer, and is surrounded by epidermis as if incapsulated. There remains in the skin a kind of pit where the favus was; the mucous layer of the epidermis bleeds, and has the appearance of a sore. This is only the result of the pressure of the elements of favus upon the epidermic cells, which, when the pressure has been removed, dispose themselves normally, and the pit disappears. The Favus scutulum remaining on its place grows always peripherically. The old part is in the middle, of a whitish color, and the younger periphery is yellowish, and elevated above the level of the other, and the whole scutulum shows its structure composed of concentric rings. From its appearance it has been compared to several known things, as to the honey-comb, and in English it was called honey-comb ringworm; to a saucer,

and the French, from this likeness, called it *godet de favus*; or to a shield, *Favus scutiformis*. The *Favus scutulum* grows to a certain point, the yellowish color changes to a dirty white, and after some time, on account of scratching and rubbing, it falls off, and on its site there remains a flat, depressed, atrophic scar, entirely bald, covered with an epidermis in appearance like parchment. Sometimes the favous mass does not spread much on the surface, but is accumulated, forming a kind of *hipes*. The hairs, by the presence of favus, lose their brilliancy, and look as if dusty; when slightly pulled they easily come out, and after a while they fall off of themselves. The follicles of the hair by the pressure of the elements of the favus are atrophied, and permanent baldness is the consequence. So the atrophic cicatrices of the skin are nothing else than the result of the pressure on its elements from the favous masses.

The subjective symptoms in favus are only an itching sensation and a feeling of tension in the skin. Scratching on the part of the patient, and irritation of the favous masses, very often cause complications, as pustular eruptions; and frequently lice, finding propitious ground for breeding, aggravate the condition. The lymphatic glands of the neck participate in the inflammation, and at first swell up, and often pass to a suppurative condition.

Favus has a very chronic course. It begins in childhood, and may continue during the entire life, if left without treatment. The process ends when the hair follicles are destroyed; but sometimes favus attacks its subject in two or three points, and after a while, the hair falls off, leaving bald spots where the disease had its site.

Favus also attacks the bare skin—which, however, is furnished with lanugo hairs—in the form of small scutula, or in extensive spots. We can say that any part of the body is subject to an attack of favus, and the scutula and the spots have the same appearance elsewhere as in the scalp. Usually *Favus corporis* is accompanied with *Favus capitis*,

the one being the disposing cause of the other. While favus in the scalp is so slow in its course, on the body in two or three weeks it makes much more speedy progress.

Sometimes favus has been observed in the nails of the fingers. Under the nail we find the elements of the fungi, which spread themselves until the lunula is affected; at other times nothing is noticed externally, only the nail is dry, turbid, and breaking, as in psoriasis. Under the microscope the elements of the fungi are clearly seen, and these are the cases of *Onychomycosis*. The nails are liable to get the favous elements by the action of scratching.

Under the microscope the fungus of favus is developed from conidia and mycelium. The mycelium is made up of



ACHORION SCHÖENLEINII.

(500 Diameters.)

(SHOWING SIMPLE MYCELIUM, RECEPTACLES, BROKEN MYCELIUM, AND FREE SPORES.)

narrow, apparently flattened, tubes or threads, ramified in all directions, and in different lines. Some are jointed, having the appearance of a chain. The spores, conidia, are small

bodies, irregularly shaped, varying in size. They are round or oval, and are intermingled with the mycelium. The fungus attacks the hairs, the bulbous and the root being especially invaded. Favus penetrates into the follicle of the hair and extends itself up to the shaft.

The parasite is, of course, transmitted by contagion from one to another, and without any doubt favus is a disease of the lowest classes of society. The individuals affected with favus are usually such as neglect the cleanliness of their body, living in dirty, damp, and badly ventilated apartments. In a large number of boys and girls affected with favus, who every year are sent to the Hospital for Skin Diseases in Rome, we never found a case of favus which could be thought spontaneously developed. The boys playing together exchange their hats, their caps, and so the disease passes from one to another.

Contagion can also exist between man and domesticated animals. The mouse, the rabbit, the cat, and the dog are affected with favus, and from them it can be transmitted to children. It is also possible that spores of favus flying in the air find advantageous ground to develop on parties not affected. In the United States favus is very rare. In our practice in Cincinnati we have found in a large number of persons affected with skin diseases only five cases of favus, and these were imported from the old country.

When the cause of *Tinea favosa* was unknown, of course the disease was believed incurable; but since the cause has been detected in the vegetation of the fungus, the disease is perfectly curable. Favus has recovered spontaneously when the follicles of the hairs are destroyed, leaving permanent baldness and permanent atrophic scars of the skin. But to-day we have permanent recovery, saving the hairs and leaving no trace of scar.

In the skin not covered with hair the treatment of favus is very simple. After removing the scutula, the place is rubbed with green soap two or three times a day, and this is

sufficient to insure a permanent cure. But on the hairy skin, especially on the scalp, the treatment is long, and requires a good deal of care. The first thing is to remove the scabs and the favous masses, which must first be softened. With sweet-oil we anoint the head, which is covered with a flannel cap, in order to leave the oil in the skin. After two or three days, when the scabs and the favous masses are softened, the head is washed with green soap, and in this way is entirely cleaned. The hair must be cut short so as not to prevent the action of the salve which we apply. As we have seen, the *favus vegetans* in the follicles of the hair, and in this way the parasite is protected from the action of the remedies. Therefore it is necessary to remove the hair. To remove the hair, a cap of pitch was formerly used, but this was exceedingly painful, and of no use. Epilation must be done, and very carefully, so as not to break the hair. When the hair is broken the root remains in the follicle, leaving spores and mycelium in its sac, and the epilation is of no benefit. For this purpose we use a pair of pincers or tweezers, with broad blades, which grasp the hair firmly and securely, to prevent its breaking off. It is not possible to epilate the whole scalp in one day, and therefore it is necessary to epilate one piece after another during several days. In the before-mentioned hospital in Rome, where we practiced for over two years, we had from one hundred and fifty to two hundred boys and girls affected with *favus*, and we taught the patients to epilate themselves. In this way one epilated the other without causing trouble to the attendants. After the epilation has been done, when the meati of the follicles are still opened, an antiparasitic remedy must be used. This, penetrating into the follicle, may destroy the parasite. For this purpose we used to bathe the head with a solution of sublimate, in the proportion of three grains to one ounce of water, soon after the epilation. The Wilkinson ointment was also used to rub the head twice a day, covering afterwards with a flannel cap. Good

success was also obtained from petroleum, which we used alone or mixed with oil and Peruvian balsam. Petroleum alone very often produces a folliculitis, with suppuration, which obliged us to discontinue its use. Oleate of mercury and oleate of copper were also used in different preparations, always with good results. The epilation during the treatment must be repeated from five to six times, according to the extension and the age of the favus; and before discharging the patients it is necessary to keep them for several weeks under careful observation. Hygienic measures are also necessary in the treatment of favus. Good nutrition, ferruginous preparations, in order to improve the general system, and proper care to secure cleanliness of the body, are required.

TRICHOPHYTON TONSURANS.

This is another fungus, which was first discovered and described by Malmsten and Gruby, and is found in the hair, in the hair follicles, and in the epidermic layers. When it vegetates among the fibres of the hairs, it makes the hair dry, easy to break, and very frequently causes it to split. The hair in several places is swollen, and its fibres are distended, from the fungus elements vegetating in its central canal. Under the microscope the threads of the fungus are found, sometimes appearing parallel with the fibres of the hair, very thin and subtile, and having in their midst abundant round cells. Other threads are jointed, larger than the first, and the joints sometimes are placed at some distance one from the other; sometimes they are entirely connected together. In several places conidia are seen, containing many cells, spores, which are sometimes so abundant that the mycelium can not be seen. The broken hairs are invaded in their length with spores, which are more numerous near the root, possessing completely its structure. The hair, distended by the spores, is ruptured here and there along its shaft, protruding in filaments, and at the broken end

appears like a brush, on account of the broken filaments, between which spores are found. The follicle of the hair

is also attacked, and becomes distended and raised.

When *Trichophyton tonsurans* vegetates on the epidermic layers we find it on the skin of the body, and also on the scalp. Its place is in the deep layer of the cuticle and on the most superficial layer of the Rete mucosum, when, in the form of *Herpes tonsurans*, the deeply seated cells of the Malpighian layer have been found entirely free from the presence of fungi.

In *Eczema marginatum*, however, which now has been identified as only a variety of *Herpes tonsurans*, the dermatophyton vegetates deep in the last epidermic layers. This is the only difference between *Herpes tonsurans* and *Eczema marginatum*. If we scratch the epidermis we may find the fungus, but it is not easy to find it where the inflammatory symptoms are more intense. It is



TRICHOPHYTON, AS FOUND IN
TINEA TONSURANS.

(300 Diameters.)

SHORT, BROKEN-OFF HAIR OF SCALP, IN-
VADED WITH FREE SPORES AND
CHAINS OF SPORES.

easier to find it in the scales formed by the drying up of the vesicles. The scales must be treated with a weak solution of potash to dissolve the epidermic cells, and so make perceptible the parasitary elements. Under the microscope the fungus appears imbedded in the epidermic cells, especially as mycelium; the spores are usually scanty. Long, slender, delicate,

sharply defined, grayish threads compose the mycelium, which at times has a straight, at other times a crooked course.

We have already had occasion to mention the forms of skin diseases produced by *Trichophyton tonsurans* and their general character; we will now, as briefly as possible, recapitulate the symptoms of each of those affections.

HERPES TONSURANS OF THE HAIRED SKIN.

Herpes tonsurans affects the scalp, and in the same way affects the skin covered with beard, the armpit, and the pubis where it is furnished with hair. In all those parts it has the same character. It appears as a ring or discoid spots, red, covered with small crusts at first, and with scales afterwards. The hairs break and fall off, leaving the stump in the skin like a black point. The irritation of the parasite produces an eczema, which frequently is characterized by the appearance of papules, nodules, and pustules—a true folliculitis, caused by the inflammation of the follicle of the hair through the presence of the fungus. This is the sycosis, which, from its origin, was called *Sycosis parasitaria*. *Herpes tonsurans* of the haired skin has a long chronic course, which from months may be extended to years.

HERPES TONSURANS CORPORIS.

When the hairless skin of the body is affected, it appears either as rings or circles of red color, covered with scales, *Herpes tonsurans maculosus*, or as an eruption of small miliaric vesicles, *Herpes tonsurans vesiculosus*.

Superficial vesicles appear upon the skin, grouped close together, and covered with very thin epidermis. After a few hours, by the reabsorption of the contained fluid, or by breaking, the vesicles disappear, leaving scales and small crusts on the place. The hyperæmic spot increases in size, and new vesicles appear about the edges surrounding the old scales. In a few days the spot grows to the size of a dime or more, through the new eruption of vesicles on the

edges, while the center is healed up completely, remaining only as a little pigmentation. The eruption affects sometimes the whole body, with a rapid and acute course, producing a general reaction and feverish symptoms. In the usual way the course is sub-acute, and lasts from six weeks to three months. In some cases the eruption consists in a few spots on the body, which grow slowly, with a chronic course. Herpes tonsurans, when affecting the skin which is macerated by the perspiration, as the armpit or the scrotal region, takes the character of Eczema marginatum, with the character of persistency and obstinacy.

Herpes tonsurans maculosus appears suddenly on the body and on the extremities as small spots or nodules, slightly elevated on the level of the skin, of pale reddish color, which diminishes under the pressure of the finger. The hyperæmia of the skin is frequently accompanied with a general reaction. A few hours after, the center of the spots is depressed, with slight scales, while the edges still remain reddish and swollen. In these cases it is difficult to distinguish this eruption from an acute papular eczema or from a syphilitic roseola; but after some days the characters are more definite, having attained the size of a dime, with scales in the center. In two or three weeks many of the spots disappear, only a few remaining, which spread and assume a larger extension. At times new spots come out, and so the affection lasts for some months, and after a while all disappears. Sometimes spots remain on the places affected by the Herpes tonsurans, and there an eczema is developed, with an abundant eruption of vesicles and of pustules, caused especially by the action of scratching because of the itching sensation which accompanies this eruption.

It should be recollected that Herpes tonsurans affects the nails, *Onychomycosis trichophytina*. The nails, through the act of scratching on the spots of Herpes tonsurans, are liable to get the fungus by contagion. In this case the nail appears dry, turbid, breaking, and scaly, showing no difference

from the other troubles which we have already considered. Therefore, the diagnosis is made from the existence of spots of *Herpes tonsurans*, and from the microscopie examination of the nail.

Trichophyton tonsurans, according to Robin, ought to be referred to the *torulaceæ*; Wedl believes that it is identical with the fungus of the favus by the likeness of the mycelium and of the spores. While Hallier at first obtained *trichophyton* from *penicillum*, he afterwards obtained it from *aspergillus*, the fungi of the mold, from which he might also have obtained the *Microsporon furfur*, the parasite of *Pityriasis versicolor*. The botanic observations, however, do not find much support in pathology.

Trichophyton tonsurans is frequently transmitted from one to another by contagion. It is a highly contagious affection, and is communicated from one part of the body to another. It is transmitted from one man to another, and from animals it speedily passes to man. All those circumstances favorable to the growth of the mold are also favorable to the development of *trichophyton*. In the use of towels, sheets, or clothing not entirely dry, we very often see, as we remarked before, the cause of *Herpes tonsurans*. The maceration of the epidermis by the perspiration is also an effective cause in the development of this fungus, which appears as an *Eczema marginatum* in those places where the skin is folded, as in the groins, armpits, etc. The dampness of the weather has sometimes an influence on the development of this fungus, which has a great likeness to the fungi of mold.

Herpes tonsurans is much more frequently encountered than favus. It does not produce such a dirty affection as favus, and therefore children with *Herpes tonsurans* are sent to the public schools. There the disease is by this means spread among other children. The treatment is easy when *Herpes tonsurans* affects the body; but on the head and beard it is a difficult one, much more so than favus. The

fungi introduce themselves into the follicles of the hair, affect the hair in its root and in its shaft, and the hair breaks easily at the level of the epidermis. The epilation, therefore, is unsuccessful, on account of many roots of the hair remaining in the follicle, which can not be taken out easily with the forceps. As in favus, the treatment consists in local application of anti-parasitary remedies—sublimite, petroleum, sulphur, etc.—and rubbing with green soap, to remove the epidermic scales and clean the surface. It is necessary to use great care in performing the epilation, much more so than in favus; and every day we must try to remove the stumps of hair which remained broken in the follicle. The treatment in the ordinary way lasts from three to six months.

In the *Herpes tonsurans* of the body the fungus vegetates under the epidermis, which protects it; therefore it is necessary at first to remove the epidermis. The best means are the green soap, a solution of caustic potash, the application of sulphur, tincture of iodine, glycerine and iodine, and acetic acid. The last mentioned can be employed when *Herpes tonsurans* is limited, but not in cases of *Herpes tonsurans* diffused over the whole body. In these cases, when *Herpes tonsurans maculosus* is spread all over the body, green soap is to be applied, rubbing the body and leaving the soap on; the body must be covered with flannel garments, so as to allow the soap to remain on the skin for one or two hours, when it is washed off. The application is made twice a day for five or six days. When the epidermis in several parts appears broken or chapped, a useful thing to apply is amylin; and when we discontinue the inunctions, we can use a lotion of glycerine, alcohol, and carbolic acid, or some *Unguentum Wilson*, as in the treatment of seabies, in order to combat the artificial eczema resulting therefrom.

Wilkinson's ointment, as modified by Hebra, is also of good service, but it is annoying to the patient on account of its disagreeable smell. *Chrysorobin* has been also applied with satisfactory results, especially in *Eczema marginatum*.

In these cases the application of tincture of soap with sulphur has been found very useful and convenient. It may be prepared according to the following formula :

R.	Spirit. sapon. kalini,	gmm. 150.0.
	Lact. sulphur,	gmm. 10.0.
	Balsam Peruv.,	gmm. 5.0.
	Misce.	

The spots of *Herpes tonsurans* are rubbed twice a day with this mixture, and the result has been always satisfactory.

Of late years ichthyol has been proposed for several affections of the skin, and is grouped by Professor Unna, of Hamburg, together with resorcin and pyrogallic acid, in a class of remedies which he calls *Reducentia*. Ichthyol is the result of the combination of ichthyolic acid with a basis, and *Natrum sulphoichthyolicum* is of the largest application. He considered the action of ichthyol on the skin covered with its epidermis, on the skin deprived of epidermis, and in parasitary affections. Ernst Besnier referred in the *Académie de Médecine* to a work of Dr. Cramoisy, maintaining the opinion that the antiparasitic remedies act not so much by killing and destroying the parasite as by producing necrosis of the superficial epithelial cells of the skin. Therefore, every method capable of causing desquamation of the epidermis may be used in treating parasitic dermatosis. Proof is furnished by the use of solutions of bichloride of mercury in parasitary affections. Where a slight solution produces no result, a strong solution brings about recovery when desquamation begins. But although this theory is ingenious, there remains always the other question, whether the stronger solution did not destroy the vitality of the parasites, producing, as a secondary effect, the desquamation. Or, I would ask, is desquamation necessary before the remedy can attack the parasite, which in many cases is protected by the epithelium? I do not intend to spend time in discussing theories; it is, however, certain that, in order to secure a recovery from any parasitic affection, we need

an antiparasitic substance which possesses the faculty of producing desquamation of the epidermis. Ichthyol in these cases is very useful in allaying the itching sensation and in destroying the parasite. Several cases were reported by Unna, who brought about a recovery by using a salve containing ten per cent of ichthyol. In my practice a gentleman called upon me for the relief of a *Herpes tonsurans corporis maculosus*. The affection had lasted for years, progressing from one point to another of the cutaneous surface. The itching sensation was so unbearable as to prevent sleep. I used ichthyol in the following formula,

R. Natr. sulphoichthyol.
 Spirit. æther, āā, ʒiij.
 Collodion, ʒss.

covering the spots twice a day. The itching sensation was in a short time relieved, and the spots disappeared with a slight desquamation.

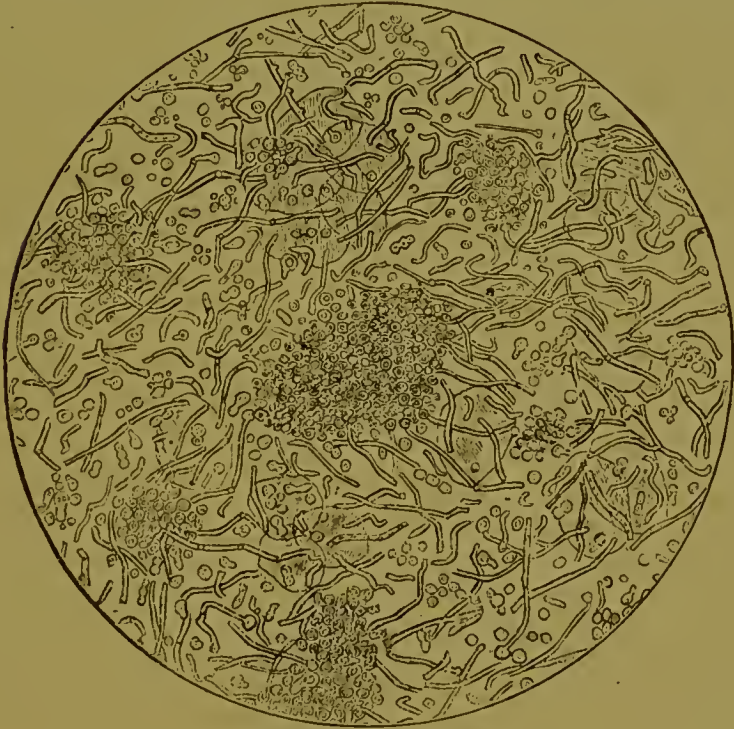
In cases of eczema accompanying the affection, when excoriations are present, ichthyol can be mixed with a salve, as Unguent. diachyl. Hebræ, or Unguentum Wilson. In other cases, when a stronger action on the epidermis is required, ichthyol can be mixed with Sapon. virid. and some Oleum cadinum.

MICROSPORON FURFUR.

This fungus was first discovered in 1846, by Eichstedt, in those brownish spots of the epidermis which were known as *Maculæ hepaticæ*, and were afterward called, by Willan, *Pityriasis versicolor*. Microsporon furfur consists of mycelium and spores. Short, fine, slender threads, crossing each other in every direction, form the mycelium. Some of these threads are empty and simple, while others contain, here and there, spores and granules. The spores are small, of various sizes, highly refractive, grayish, aggregated together, and having sometimes the appearance of clusters of grapes. The fungus is very luxuriant. It vegetates in the horny

layer of the epidermis superficially, causing therefore no such irritation as the other fungi. It is easy to detect it under the microscope by scratching off a little of the epidermis on the spot affected. The scales are treated with a weak solution of ammonia or of potash, to dissolve the epidermis, and placing them in a drop of glycerine.

Microsporon furfur causes only the affection called *Pityriasis versicolor*; but according to English authors, who give



MICROSPORON FURFUR.

(500 Diameters.)

SHOWING MYCELIUM IN VARIOUS STAGES OF DEVELOPMENT, GROUPS OF SPORES, AND FREE SPORES.

the name of *Tinea* to all the affections produced by vegetable parasites, it is called also *Tinea versicolor*. The affection appears only under the form of yellowish-brownish spots, resembling those of coffee or of chocolate. The spots are of different sizes, from a pin-head or a split-pea to the size of the palm of the hand, occupying sometimes large tracts of the skin. The surface is flat, sometimes a little scaly. They are found

on the skin, covered with the clothes, and especially in the region of the sternum, between the shoulder-blades, on the internal surface of the arm, on the neck, on the armpit, on the thighs, and in the popliteal region, while the face, the hands, and the feet are never affected. The spots are always neatly limited, and passing the nail on it a little desquamation comes off, and with some force small lamella can be removed, leaving the epidermis beneath red and sometimes slightly bleeding.

Subjective sensations are scarcely noticed. Some people never complain of any trouble; others, when overheated, feel an itching sensation. The process begins usually near a hair follicle, and spreads so slowly that after some months there is no perceptible difference in the size of a spot.

Pityriasis versicolor being a parasitic affection, it appears at first that it must be a contagious one. Authors, among them Anderson, refer to cases where Pityriasis versicolor was spread among several members of the same family. In our experience we can not see clear proof of contagiousness, having found married men affected for several years with Pityriasis versicolor, sleeping with their wives, who never contracted the affection. Köbner took the fungus, put it on his own skin, and he had the affection. This experiment shows the inoculability of the *Microsporon furfur*. It seems that a peculiar condition of the skin when this organ is very greasy, with tendency to Pityriasis tabescentium, offers the most favorable opportunity for the development of *Microsporon furfur*.

The fungus, being so superficial, is easily attacked and destroyed. Rubbing the skin with green soap, as in cases of *Herpes tonsurans maculosus*, is sufficient to cause Pityriasis versicolor entirely to disappear.

MOLLUSCUM CONTAGIOSUM.

This is a very peculiar disease of the skin, and has not yet had a place in the dermatological classification. It has

received different names, according to the different opinions of authors. By Hebra, Sen., this affection is referred to the degeneration of the contents of the sebaceous gland, and is called by him, *Molluscum sebaceum*. Bazin referred it to acne, and called it *Acne varioliformis*. *Molluscum verrucosum* was the name given by Kaposi, on account of its resemblance to warts; and Virchow distinguished it as *Hyperplastic epithelioma*.

The affection consists in the eruption of rounded prominences on the skin, of different sizes, from a pin-head to a pea, of a whitish or rose-red color, simulating the appearance of wax, unaccompanied by sensation. While the tumors are growing, they become semi-globular, covered with a stretched, glistening epidermis, having on their summit a central depression, like the umbilicus, which suggested to Bazin the designation *Acne varioliformis*. Their growth is very slow, continuing for a long time. The number varies from few to many, and usually are found on the face; but they affect also the skin around the genitals and the breast.

In Cincinnati we have very seldom seen cases of this affection, and Duhring remarks that this disease is rare in this country. In Italy we had opportunity to observe many cases of *Molluscum contagiosum*, which we found chiefly in small children, badly nourished, and affected with eczema.

If these tumors are squeezed with two fingers, the contents easily come out in the form of a round, whitish granulum, resembling a grain of boiled barley, from which, on pressure, a kind of milky fluid can be obtained.

Bateman called this affection *Molluscum contagiosum*, having remarked the contagiousness of the eruption. But many authorities deny that it is contagious, especially after the negative result of the inoculations practiced by Hebra and Neumann. But in spite of this, we are inclined to believe, from our experience, in the contagiousness of this affection. Amongst others we recollect a child, by name, R. M., one

year old, lymphatic, suffering with eczema of the right cheek and temple, having in his face over ten molluscum nodules. Some of them were on the eyelids, around the nose, on the lips, and on the chin. Several other molluscum granules were scattered on the right hand and on the upper arm, which appeared after those on the face. The child used to rub the face with the back of the hand to relieve the itching sensation caused by the eczema. The mother of the child, a young lady in good health, had molluscum eruptions on the back of her right hand and several on her lips, which appeared after those of her child. In this case it is not possible to deny the contagiousness of this affection.

To-day we have more reason to maintain the contagious nature of molluscum, finding support in microscopical observations. Henderson and Patterson described some peculiar corpuscles in the molluscum granules, which they called corpuscles of molluscum, to which they attributed the faculty of spreading. Bollinger declared those corpuscles to be gregarine, and considered *Molluscum contagiosum* a parasitary disease.

Molluscum was considered an adenoma of the sebaceous glands, which opinion is still supported by Kaposi, Neumann, and Behrend. The examinations of Geber upon the nodules of young molluscum before its development reveal that the accumulation of cells is in the rete, under which the papillæ can be seen in their normal condition. The cellular accumulations take several shapes, going down in the form of a cone among the papillæ, and, on account of appositions of new cells, the whole mass takes the shape of sebaceous glands. Geber could not find granules of molluscum proceeding from the contents of the sebaceous glands; therefore, he considers this affection as the result of a neoplasy in the *membrana propria* of the same glands.

It appears under the microscope a cellular accumulation, surrounded by cells of the Rete Malpighii, which are divided in septiments or loculi by the appendages of the connective

tissue of the papillæ. In the centre there are some kinds of corpuscles, whose nature has not yet been established. These small, dark, oval-shaped corpuscles are considered as the molluscum corpuscles, and Bollinger, holding the contagiousness of the molluscum, referred it to the Gregariæ or Psorospermien, which, entering into the skin, are able to reproduce themselves so as to cause the described trouble.

Molluscum has no other treatment than removing the contents, squeezing the tumor, and, with a strong solution of perchloride of iron or a piece of nitrate of silver, cauterizing the basis.

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